ITEMS OF INTEREST.

VOL. XVIII. DECEMBER, 1896. No. 12.

ORIGINAL COMMUNICATIONS.

NEW JERSEY STATE DENTAL SOCIETY.

ELECTRICITY IN DENTISTRY.

By Dr. F. T. Van Woert.

EVENING SESSION.

Notwithstanding what Professor Flagg has said, the day has arrived when every dentist should have a cataphoric machine in his office. But in a year from now I believe that those who have them will use them less often for anæsthetizing sensitive dentine than they do to-day, because of the consumption of time in many unnecessary cases. It has been used much where it was not needed. I have had patients tell me, "I did not feel pain, but I would rather endure a little pain and save time." Dr. Flagg said that it requires forty-five minutes to get satisfactory results. That is a mistake. I have had cases that took forty-five minutes; and one case, and only one, where I was not successful, that took one hour and a quarter, the tooth being as sensitive after I took the electrodes away as it had been before, and the patient suffering all through the operation, although I did my best to relieve her by reducing the current to a minimum. But I believe that properly utilized cataphoresis has come to stay. If used for no other purpose than the treatment of inflammation of the peridental membrane, an instrument is worth the money paid for it. The time required in treating the tooth is not half that which is used in preparing a cavity without it. However, I believe that it can be so arranged that there is no waste of time. Place the patient in an ordinary chair, make an application of the current with a suitable electrode, give a current of, say, one-fifth of a milliampere, which can be done without pain, and you can go away feeling sure that if satisfactory results are to be had at all you can get it with this amount of current. That is my experience. I find that a high

tension current, and, by that, I mean a current that is sufficient to cause intense pain—three, five, or ten volts—might cause as much pain to one patient as fifty volts to another; but if it is severe enough to cause pain it is not the current for cataphoric medication. In my later operations my practice has been to turn on the current until the patient feels it, and then reduce it until it was not felt. As soon as I get a reading high enough, I leave it until it is time to renew the cotton. I would not hesitate to leave a child in one chair for an hour, if necessary, while I was operating on some one else, provided I had only what could be tolerated without suffering.

I will give you a little of the history of cataphoresis. In 1892 Dr. Westlake read a paper in which he announced the principles of cataphoresis in dentistry; it was a new thing then, something which Mr. Wheeler worked on with him at the time, and they were both just at the beginning. Since then it has been perfected. Dr. Gillette read a paper a year ago, and it is to him that the dental profession is indebted for the fact that cataphoresis has come into practical use in our profession. It is not with the purpose of reflecting at all upon Dr. Gillette, or any of the more recent workers in this line, that I proceed with this history, but only that I want you to know that cataphoresis was practiced a great many years ago.

Cataphoric phenomena were studied with indifferent and indefinite results by various investigators in the latter part of the last, and early part of the present, century.

The first demonstration of definite results was announced in 1858, when B. W. Richardson tried successfully morphine cataphoresis for local anæsthesia, using a five per cent. solution. He next tried the following

℞. Tr. aconite radices..... 10.0 gr.
Chloroform..... 10.0 gr.
Ext. aconite..... 1.0 gr.

for eleven minutes (strength of current not given) on a dog, whose leg he amputated, apparently painlessly. Richardson called this voltaic narcosis, and demonstrated its successful application in the human subject, using it for the relief of neuralgic affections, and in cases of minor surgical operations.

The most successful utilization of the method was for the extraction of teeth, using the above formula for ten minutes.

Thus we find, in 1858, teeth were extracted by means of cataphoresis.

The explanation of the anæsthetic results following the ap-

plication of medicaments by means of the electric current was, however, not received without incredulity, and it was claimed that the anæsthesia might be produced without cataphoric influence, some going so far as to deny cataphoric action absolutely.

It remained for Quinicke, in 1863, to prove definitely and scientifically the influence of cataphoresis in promoting the transfusion of fluids by capillary glass tubes, provided with a porous diaphragm.

In 1865 W. Kuhne demonstrated the effect of cataphoresis upon living muscle, showing a current produced in the fluid of the tissue, in a direction from one pole to the other, resulting in a distinct thickening of that end of the muscle fibre, toward which the fluids accumulate. Bianchi, Brigoli, Palma, Verati, Winkler and others corroborated the above, and by their experiments proved the cataphoric influence of medicine upon tissues.

From 1870 to 1873 Becquerel, Davey, Fabre, Paleprat, Guardana, d'Haehn, Hassenstin, Mangini, Priestly, Sigand de la Fond and others made use of galvanic, farradic and combined currents with equally successful results. Beer, in Vienna, tried iodine solution with only indifferent results, while V. Bruns used a saturated solution of iodide of potassium, producing salivary reaction, to starch in twenty-five minutes. Munk corroborated this, and also succeeded with solutions of quinine and strychnine, clinching his results by producing toxic strychnine symptoms in rabbits by injection of saliva and urine from cataphorized subjects.

J. V. Wagner, of Vienna, elaborated the apparatus and method, and used four per cent. alcoholic solutions of cocaine for five minutes with six milliamperes.

Fifteen to twenty per cent. solutions with same current required only two and a half minutes, while the same solution, with half the strength of current, required five minutes. He also proved that the same solution, without current, applied to the skin, produced no noticeable effect. The same current without the solution was equally inert.

Halbies cocainized the membrana tympanius, by means of the cataphoric influence, successfully.

J. L. Corning, of New York, proved the anæsthetic action of cocaine upon the cutaneous surface by means of cataphoresis. Adamkiewiez used chloroform by means of a specially constructed electrode, and, although he claimed success, this was not corroborated by subsequent observers or by my own experiments.

Chloroform used in this way invariably produces a slough (chloroform having a resistance of two billion ohms).

Doctors Peterson and Booth, of New York, under the direction of Professor E. C. Seguin, conducted a series of experiments proving the possibility of penetrating the skin and anæsthetizing superficially situated nerves by cataphoric cocainization. They used Wagner's electrode, an average current of seven milliamperes per ten minutes and a cocaine solution of twenty per cent. strength. The anæsthesia, with consequent result to persistent neuralgia, lasted, in different cases, from five to eleven hours.

My own work corroborates all the above-mentioned effects. I have noted, also, that increased strength of current (*i. e.*, to the point of tolerance), with the same solution, produces the same effect as diminished current applied for longer periods.

We now come to the last, and, to my mind, one of the most important considerations in cataphoresis, namely, the conductability of preparations used in this method of medication. At a meeting of the Central Dental and Second District Societies, I tested the resistance of quite a number of preparations with an instrument which was arranged for a column one-quarter of an inch in diameter, one and three-quarters inches in length, and the electrodes one and one-eighth inches apart. The results of these tests were quoted later at a meeting of the Institute of Stomatology. Immediately after that meeting I found I could get very much more reliable results with an instrument capable of graduation, and ordered one, which is here shown. When I received this instrument I also received a transcript of remarks, made by Dr. Howe, of New York, in which he took me severely to task, claiming that some of the preparations which I had classified as non-conductors are, in reality, fairly good ones. To test the accuracy of this, I made experiments before the gentlemen in attendance this afternoon, and I find that Dr. Howe is as much in error as myself. In the first place, five and twenty-five per cent. ethereal pyrozone secured from the agent who has the exhibit here, and just opened, bear out my former statement, that they are absolute non-conductors; when I say absolute, the term is not used literally, but means that practically for all dental cataphoresis, it is just as stated. Again, I have failed utterly in getting the least deflection of the needle upon the milliampere meter from guaiacol. These experiments were witnessed by quite a number of the gentlemen present, and I believe the method employed is accurate. As to the exact resistance of any material, I am free

to confess that I do not know it, and I doubt whether any one present does. The moment the current is turned into the medicament an electrolitic change takes place, which makes it impossible to get an exact measurement; for instance, if you were to test a fluid in one corner of the room, then take it to the opposite, and there test it again with the same instrument, you would find the reading upon the meter varying considerably; or, if two pieces of wire are taken from the same coil, and are of exactly the same length and weight, a marked difference will be found in the resistance of the two; thus you will see that minute measurement is very difficult, if at all possible. That I was wrong in the manner of making my first test I am willing to acknowledge, and I concede to Dr. Howe that point. The sincerity of a man's desire for the advancement of science is best shown by his willingness to accept correction, when in error, and I take this opportunity of publicly acknowledging my mistake.

DISCUSSION.

DR. GILLETTE.

I agree with Dr. Van Woert entirely in what he states about the number of cases in which we should use cataphoresis. Most of the cases in which I use this method of practice are those in which I feel that I save time by doing it. I have patients in my practice for whom I can do in fifteen minutes, after I have the tooth under control, what I could not do in an hour and a half, what I could not do at all, without some such method to aid me.

I have a patient with whom I am working now where half an hour is required, especially where we are handling two cavities, as I frequently do with her, but her's is one of those cases where I save time; the work that I do for her would take me fully an hour and a half or two hours if I had not that help. It is in my hands a method for the bad places, not a method for the easy places.

One of the points of importance which was touched upon by Dr. Van Woert is the amount of pain that is given in making the application. I am in the habit of saying to patients, who are not familiar with the method, that I want to know immediately if they are being hurt; that I don't propose to give them one pain for the sake of saving another; that the whole application is under control and that there is no necessity for them to be hurt. And that is a fair statement of the facts. I have yet to meet a case in which I cannot control the sensitiveness by cocaine cataphoresis, and in which I cannot control it without inflicting pain that would be considered objectionable by sensitive persons.

What Dr. Van Woert has said about the milliampere meter I agree with fully. I consider the milliampere meter an important adjunct. I believe that if in the future we see any ill results from this method of practice, we shall see it from the careless use of the current, and from the cases where we have not known what we were doing because we did not have the milliampere meter to guide us. The only possibility of ill results that I can see would seem to be in cases where too much current is administered to a tooth with a large cavity and a thin layer of dentine covering the pulp. It seems to me theoretically quite possible to cause a lesion on the surface of the pulp by electrolysis of the pulp tissue itself. Dr. Van Woert has said that one-fifth of a milliampere is sufficient; but I think I get better results from a larger current. I do not hesitate to give a full ampere, and in selected cases even more than that. I should, however, hesitate very much to pass more than a milliampere of current through a deep cavity, where I had reason to believe there was but a thin layer of dentine, let us say equal in thickness to a sheet of ordinary blotting paper; I should prefer to use not more than half a milliampere with such a cavity as that.

With regard to the conductability of fluid, it seems to be an open question as to what the influence of the conductability of fluids will be on our practice, even if we are able to determine that point. As Dr. Van Woert has said, it is very difficult to find out what the conductability of any given fluid is. That conductability changes very readily. The conductability at the moment of making a connection with the current is difficult to ascertain, and, in addition to that fact, there is this further fact that as soon as you begin to pass the current through the fluid you change its condition, electrolysis begins to take place, and you have something different from what you had a second or two earlier, and it fluctuates.

Referring to the use of the apparatus in soft tissues, it is a great relief to have at command an apparatus which will allow one to do so much for abscesses and similar troubles as can be done by the simple application of iodine by cataphoresis. I use a compound tincture of iodine diluted about one-half. The ordinary tincture of iodine is not very satisfactory in my hands for use in that way; what is known as the compound tincture is what I am in the habit of using, diluted with water to about one-half, I have had a large number of cases where I have obtained a great deal of satisfaction from this application.

DR. G. CARLETON BROWN.

I might relate a little instance, which, I believe, has been spoken of around the meeting to-day, of a slight mishap which occurred in my office during the week of examinations. One of the students was assigned to prepare a cavity for the insertion of a filling in an extremely sensitive tooth; it was utterly impossible for him to excavate as he wished. He started early in the morning, and I told him to make a little clinic of it and to use a little cataphoresis. I applied the cataphoresis, using a light voltage. I believe there were six volts on at the time; I was just about ready to take it off when the patient almost turned a somersault—he had a shock, and it was rather perplexing at first to know what gave him that shock. I figured it out, however. I have one of the bracket spittoons at the side of the chair, and, when using cataphoresis, I am always very careful to turn it well away so that the patient cannot by any chance strike the spittoon and ground himself, for, if he does, he will get a shock. As a special precaution, at this time I threw one of the student's coats over the spittoon. They crowded around, and one fellow got hold of the spittoon and the patient at the same time, and the result was that the patient suffered, but the cataphoric results were produced just the same.

DR. BOGUE.

I recently had a case where an amalgam filling was in the sensitive cavity of a tooth, which had to be taken out. Now, how about cataphoresis? It didn't work at all. The patient having been accustomed to operations which were almost painless, rebelled, and was very savage. I do not know whether I should ask pardon for referring to something that is very well known in some quarters, but I find that it is not known in all quarters, and that is that I use chloride of ethyl, as I did in this instance. In two and a half minutes I had complete anæsthesia, and was able to finish the operation almost completely before the sensibility returned.

DR. FREEMAN.

Was there any complaint of ill effects within three or four days after the use of chloride of ethyl?

DR. BOGUE.

On one occasion I had such complaint, but it was the only case. Since then I have always been afraid of it, consequently I do not apply it any longer than I can keep my finger alongside of it. My first experiment generally with new remedies is made upon myself.

DR. FREEMAN.

I have had quite an experience with it, and I will speak of it later, when you get through.

DR. BOGUE.

Another gentleman told me that he had used zinc chloride. I have used it with the machine, but it utterly failed. Perhaps it failed because I did not know what current was passing, or what I was doing; I then applied carbolic acid and cocaine for a minute, or perhaps half a minute, and then the zinc chloride, and in a few minutes I was able to excavate the tooth with entire satisfaction.

GEORGE M. WHEELER, New York.

One of the most interesting points in Dr. Van Woert's paper to-night was concerning the different resistances in medicaments. I have had a little experience in this direction. The chief reason why the resistance changes, as Dr. Van Woert said, in passing from one pole to the other, is because the passage of the current causes incipient electrolysis. Even with the small current used in cataphoresis the passage of that current must decompose to a certain extent, the fluid, and the decomposition is attended with a counter electro motor force and also a breaking up of the particles, and for that reason no fluid I have been able to get will remain absolutely constant.

Now, about meters. A meter is a first-class thing for a man who wants to make a record for a test, but as far as hurting a patient, as Dr. Gillette suggests, by putting on plenty of current, you will never hurt them; they will let you know long before you can cause any trouble in the tooth. In using milliampere meters I have seen a good many operations where I have been rather staggered by the amount of current going through, for you can send much more current through soft dentine than you can through hard matter, and the current, in any case that I have ever heard of, will not injure any pulp that is healthy; it will do no damage as long as the patient can stand it. The patient is a good milliampere meter for you. He will let you know when he has too much. Of course, if you want to make a record for a paper to be read, it is a good thing to have a good milliampere meter to measure it with; but for practical work I do not find it necessary at all, and a great proportion of the men using the apparatus do not use the milliampere meter. It is a nice thing to have, but it is not a necessity, and it is liable to mix one up, as most of these meters are easily affected by the steel instruments

used in dentists' offices and they are apt to go astray. You may take a reading of one-fifth of a milliampere, and if you should lay down an excavator near the instrument, it will jump up to one milliampere, perhaps to two, and perhaps over that.

Dr. Brown, of Elizabeth, spoke of the current in his office. In Elizabeth we have peculiar conditions which I have not found in other places. That is, there are small lines and some very large motors, and I would not suggest in any case, where there is such a combination as there is in Elizabeth, using the current from the street. In large places, like New York, Philadelphia and Boston, where they use large plants and are able to keep their electro motor force at a proper standard, it is all right; you can get a much higher voltage without the additional expense. So in New York City we can get eighty volts. That comes in very handy sometimes, although some say they never use it. A man came to the office, recently, and asked me if I couldn't give him higher than eighty volts. I used it on a tooth for bleaching and it took me fifteen or twenty minutes, and I could have done it much more quickly if I had had a higher voltage. That is one of the cases where you can use a high voltage without pain to the patient.

Another thing I have found to help me in my work is Dr. Brown's idea of mixing electrozone with cocaine. About a month ago I had a case of exposed pulp highly congested; I had eleven volts on for twenty minutes, with a twenty-five per cent. solution of cocaine, and I thought I had met my first failure; after twenty minutes I took that off and put on some of this cocaine solution that Dr. Brown so kindly gave me, a fifteen per cent. solution of cocaine in meditrina, and five minutes after applying that solution I had the nerve thoroughly anæsthetized. The next week I had two cases. In both I got complete success in five minutes, which leads me to believe that, as this does reduce the resistance of the medicament, it has a great deal to do with the hastening of the operation.

DR. MEEKER.

I have been using cataphoresis for nine months, and I have not been at any time more than eighteen minutes in anæsthetizing the tooth with all the preparations that I have used. I hear my friends tell me they use ten, twenty, thirty or forty volts; I have never used more than twelve volts. I have used cocaine in solution ten and twenty per cent. I have used the gio-cocaine and I have used Parke, Davis & Co.'s tablets of morphine and co-

caine in water. My best success has been with Dr. Brown's solution.

DR. SULLIVAN, Albany.

Before passing this subject, I should like to say that, according to my experience, a great many men are afraid that the passage of the current through the pulp of the teeth will cause some cellular destruction. I read a report of a meeting that took place in New York City, and they made a microscopic examination of nerve cells and various tissues taken from different parts of the body from men who were executed by electricity, and there was no cellular destruction whatever. They could find no change in any of the cells that were examined microscopically, and Dr. Carlos McDonald states positively there was no cellular destruction, except where the electrodes touched the body. In executions a current of from seventeen hundred to two thousand volts passes through the body, and if a current of that strength can pass through without cellular destruction, I don't think a dentist should be afraid of passing a current of from three-twentieths to five-twentieths of a milliampere through a tooth.

On motion, the paper of Dr. Van Woert was then passed.

Adjourned until Friday, July 31st, 1896, at 10 o'clock A. M.

REPORT OF MATERIA MEDICA COMMITTEE, 1896.

Your committee cannot present a report that will thoroughly review the field of "Materia Medica," as, during the past year, there have been introduced to the dental profession too great a number of new remedies. Foremost are the agents for obtunding the sensibility of the dental organs.

Cocaine hydrochlorate, in various combinations, is gradually approaching the high position it deserves to occupy. Guaia-cocaine (so named by Dr. W. J. Morton, New York City) is a combination of pure crystalline guaiacol, with anhydrous hydrochlorate of cocaine. Its greatest advantage over cocaine in aqueous solution is that the toxic effect is almost wholly eliminated. The cocaine having greater affinity for the guaiacol than for the watery element of the blood, comparatively little cocaine enters the circulation. It possesses a disagreeable odor, which we are told will be overcome.

In the *Cosmos* of January, 1896, Dr. W. J. Morton, New York City, describes several operations in which guaia-cocaine was used as the anæsthetic agent, the electric current also being

employed to prolong the action and secure deeper penetration. Tooth extraction and implantation were successfully performed and, during deep incisions, involving drilling out of bone, the patients experienced no pain whatever. Many prominent practitioners have verified Dr. Morton's statements.

Cocaine used in combination with the sulphate of morphia and the sulphate of atropine has given excellent results. Meditrina and cocaine in the hands of some have won favor.

In the use of all cocaine preparations the operator should possess confidence in the agent employed and convey to his patient, by his calm, deliberate procedure, a confidence in himself, else the best results are not obtainable.

A rival of cocaine, known popularly as eucaine hydrochlorate (C_{19} H_{27} NO_4 Hcl), has claimed for it, contrasted with cocaine: (1) The heart is in no way influenced. (2) The anæsthesia is more extensive in area and lasts longer. (3) As much as thirty grains of eucaine can be injected without trouble, whilst only one-sixth grain of cocaine is similarly safe. (4) The eucaine solutions are permanent and do not, like those of cocaine, decompose when kept. The drug gives excellent results when used with arsenical paste for the devitalization of pulps.

As an antacid, the milk of magnesia is superior to all bicarbonate of soda and chalk preparations, and is invaluable in cases of erosion; have used it largely where iron preparations were used as tonics, first coating the teeth with the magnesia preparation, then taking the iron, brushing the teeth thoroughly and rinsing the mouth with more of the milk of magnesia. The teeth do not discolor nor are they attacked by the iron; the mechanical protection furnished by the magnesia being their saviour.

Ammonol is a product of the amido-benzine series. It is one of the medicinal coal tar products, but differs from them all in that it contains ammonia in active form and has a stimulating, rather than a depressing, action on all the vital functions, notably the heart and circulatory system.

Ammonol occurs in amorphous-micro-crystals, is strongly alkaline in reaction and has a pungent ammoniacal taste and odor. An antipyretic, analgesic, cholagogue and expectorant.

It is especially useful to the dental profession in controlling and subduing the sympathetic pain resulting from abscessed and congested teeth. Also in those cases where the general tone of the system is low and the ordinary applications fail to bring the accustomed results, and where, from contiuation of pain or loss of sleep, all means of relief seem to be unavailing. For example, a

young lady presented herself at 9 o'clock, having been awake all night, complaining of most intense pain in the inferior jaw, right side, from the second bicuspid to the wisdom tooth. The ordinary tests failed to reveal the troublesome tooth, and a consultation of the diagram of the mouth gave no aid. A dose of ten grains of ammonol was administered, and the patient told to wait in the reception-room. In a half hour another dose was given. In less than an hour she fell into a gentle sleep, from which she shortly awoke. The sympathetic pain had disappeared and the pain was distinctly in the sixth year molar. Removing the filling disclosed a congested condition of the pulp. Fearing a possible return of pain during the ensuing night, owing to the reduced condition of her system, she was advised, in case of trouble, to take another five grains. It became necessary to take it, and relief was again afforded in a few minutes. The regular treatment was followed and the root-canals and tooth successfully filled. In several other cases of congestion good results were obtained by doses of from five to twenty grains. In every case where used no depressing effect on the heart seemed to obtain.

Formalin.—This comparatively new antiseptic is a very important addition to the Dental Materia Medica. It has been quite extensively used in the medical profession for the past two years, and seems destined to play a very important part in dental practice.

Formalin is odorless, very soluble in water, non-poisonous, a germicide, disinfectant, deodorant and anti-zymotic.

Its power is truly wonderful, destroying germ life in as weak a solution as 1-20,000 and from that to 1-5,000.

In all pulpless teeth it is singularly efficacious, and is to be used on cotton as a vehicle. A 2 or 2½ per cent. solution should be used.

Dr. S. G. Perry has narrated a case of a pulpless tooth which refused to respond to the ordinary treatment, but readily yielded to formic aldehyde 2½ per cent. Below is a nearly similar case.

A patient from a neighboring city presented with a pulp congested. An arsenical application was made, and, at a later sitting, the pulp was removed. Hemorrhage followed and the pulp-canal was treated with iodoform-ether. Comfort obtained. Patient was taken sick before appointment to fill arrived, and before she could come the tooth became very sore. She removed the temporary filling, obtaining comfort, but did not present herself again in over a month, when the tooth had again become very sore and inflamed. A soothing application restored comfort, and

an appointment made for the ensuing week for filling. This date was again broken because of sickness, and comfort was maintained for three weeks. The temporary filling was again removed, and the tooth left open for nearly five months, at times, however, becoming very sore. In the meantime, the patient being unable to travel, sought temporary relief from the local dentist, which, however, was not afforded, and extraction was advised, as nothing could be tolerated in the tooth. This was not consented to by the patient, who endured the occasional pain and soreness until she was able to present herself again.

The history of her case since the last visit was narrated, and it was decided to use formalin. This treatment was successful. It was deemed necessary to make three applications, when the pulp-canals and tooth were filled. Comfort has continued.

Respectfully submitted,

F. G. GREGORY,
H. S. SUTPHEN,
Committee.

THE CHAIRMAN.

We should like to hear the report of the committee which was appointed at the last meeting on the paper then read by Dr. Newton.

DR. J. ALLEN OSMUN.

Although not the chairman of that committee, I will read the report:

Mr. President, and Gentlemen of the New Jersey State Dental Society.

At the last meeting, in the discussion of Dr. Newton's paper on the "Care of the Teeth of the Poor," the question of the fee charged by colleges in their infirmaries for this class of patients was referred to. Dr. W. C. Barrett took exception to this remark, and said, in substance, that these charges were made from year to year, and, for one, he wished that a committee would be appointed to ascertain if the statement is true or false, that colleges make unfair demands for services rendered the poor by their students in order to swell the receipts and dividends of the college.

A committee was appointed, and, after most careful thought and consideration, beg leave to report that, in their judgment, this is not a subject upon which a State society should take action, but that it should be referred to the American Dental Society, which, being composed of delegates from all States in which

colleges are located, would give their conclusions greater weight and broader influence.

Respectfully submitted,

C. A. MEEKER,
H. S. SUTPHEN,
F. C. BARLOW,
GEO. EMERY ADAMS,
J. ALLEN OSMUN.

THE CHAIRMAN.

Has the Legislative Committee anything to report?

DR. GEORGE C. BROWN.

There was a good deal of work done, but not very much progress made. A bill was drawn up by the committee, introduced in the Senate and passed without any difficulty. Then it went over to the House, and there it met with some obstruction. It was reported to the committee that if they would agree to certain things proposed to them by a member of the Legislature the bill should go through without any objection, but the committee said that if they could not have it as it had been drawn up and passed upon by members of the committee, and members of the society who had an opportunity of seeing it, they would withdraw it. The bill was withdrawn and no action taken. The committee do not propose, however, to let the matter rest, but will make another effort this winter, hoping that the gentleman who was very active against us last winter may be retired, and some one more favorable to our interests be put in his place. This man was Mr. Robertson, of Passaic, the leader of the House. He was the counsel for the dentist whom the Examining Board was prosecuting at that time, so that he had a double interest at stake.

The following names were presented for membership: Dr. Robert S. Watson of Orange, N. J., sponsors, Drs. Harvey Iridell and George C. Brown; Dr. W. M. Sullivan, of Passaic, N. J., same sponsors; Dr. Edward B. Frost, of Elizabeth, N. J., sponsors, Drs. Rosenthal and Pittman; Dr. Frank L. Wright, of Red Bank, N. J., sponsors, Dr. George C. Brown and Charles A. Meeker; Dr. C. F. Inglis, of Paterson, N. J., sponsors, Drs. William H. Pruden and William L. Fish; Dr. W. G. Chase, of Princeton, N. J., sponsors, Drs. George C. Brown, C. A. Meeker and W. Woolsey.

SECRETARY MEEKER.

I have here a letter from one of our oldest honorary members, Dr. R. Finley Hunt, of Washington, D. C., which is as follows:

WASHINGTON, D. C., July 30th, 1896.

My Dear Dr. Meeker:—I wrote my last to you with a heart sad with disappointment, but I have been getting all the comfort I can by trying to be with you in spirit and to so enjoy the greeting and being greeted with the warm grasp of friendly and fraternal feeling. My disappointment was all the greater as I regarded this, on account of my advanced age and state of health, as probably the last opportunity I would have of attending your meeting.

Should this be so, I wish to say here, God bless you, members, and your noble society, whose certificate of membership I have framed, suspended and equally valued with my two dental diplomas.

Please present to our friends my warmest regards, and to your society my sincere wishes for its continued prosperity and usefulness, and accept the same for yourself.

Yours sincerely and truly,

R. FINLEY HUNT.

SECRETARY MEEKER.

I would like to say that yesterday the Secretary, by consent of the Executive Committee, signed a contract with the ITEMS OF INTEREST, and that publication will now be the official journal of the society. They have a large capital, and instead of waiting as long as we have before, the first instalment of the proceedings of this meeting will be in the September number, and I have been promised that bound copies of the proceedings of this year will be ready for the use of members by January 1st, 1897, so that its reading will not be that of ancient history. (Loud applause).

THE CHAIRMAN.

I should like to hear the report of the Committee on the President's address.

Dr. G. Carleton Brown presented the following:

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

Your committee would respectfully report that they deem the suggestion of the President as to the necessity of establishing a "prosecuting fund" a matter of great importance at this time. Your President, in his address, says:

"Especially is this true along the lines of a higher standard of dental education, where you have always been found in the forefront of the battle; but that all is not yet accomplished is shown by the results of the work of your Legislative Committee this winter."

"Having prepared an amendment to the present State Dental Law, which made it as nearly perfect as it is possible to make any general State law; and having successfully carried it through

the Senate, it was finally side-tracked in the House, through the political influence of a man who is able to practice in this State to-day because of a lack of funds wherewith this society could properly prosecute him. It is an open secret that if your committee had consented to grant this man immunity from prosecution under the law, all opposition to the passage of the bill would have been withdrawn; and I congratulate you on the possession of a committee, whose good judgment and high sense of honor made them stand firmly on the ground that honorable defeat is preferable to dishonorable victory. This brings us face to face with a weak point in our armor, which we should now look to the Legislature to repair. The remedy lies within ourselves. Ever since the first dental law was passed we have been hampered by a lack of funds with which to get the cases of infraction of law in such shape that they could be presented to the court with a reasonable hope of a favorable decision; and while many have given up illegal practice, rather than face the prospect of a law-suit, some few have discovered our weakness, and have grown bold and openly defy us, as in the case just cited. I would, therefore, recommend the establishment of a 'Prosecuting Fund,' the collection and disbursement of which shall be in the hands of a committee to be appointed during this meeting in such manner as you may deem best."

We would, therefore, suggest that a pro rata assessment of $5 be made on the members of the society, the money to be placed in charge of the committee appointed for this purpose, and to be used under instruction of the State Dental Commission for a rigid enforcement of the law regulating practice.

And we would further suggest that the committee be at once appointed, so that no time be lost in securing the funds.

As to the recommendation of the President that a clinical laboratory be established by the society, we do not see how such work could be beneficially conducted at the present time, and would, therefore, suggest that no action be taken until Dr. Sanger be present and more fully explain his plans.

G. CARLETON BROWN, *Chairman*,
F. C. BARLOW,
G. M. HOLDEN.

Dr. G. Carleton Brown moved that a committee of three be appointed, in pursuance of the above recommendations, which motion prevailed.

The Chairman appointed the following committee: Drs. A. R. Eaton, F. Edsall Riley and F. L. Hindle.

The election of officers then occurred, resulting as follows:

President, Dr. Harvey Iredell, New Brunswick, N. J.; Vice-President, Dr. J. L. Crater, Orange, N. J.; Secretary, Dr. Charles A. Meeker, Newark, N. J.; Treasurer, Dr. George C. Brown, Elizabeth, N. J. Executive Committee: Dr. Oscar Adelberg, Elizabeth, N. J.; Dr. William P. Richards, Orange, N. J.; Dr. Herbert S. Sutphen, Newark, N. J.; Dr. J. Allen Osmun, Newark, N. J.

DR. G. CARLETON BROWN.

Three years ago Dr. George C. Adams was recommended to the Governor for the Board of Examiners. For some reason the papers to Dr. Adams were made for four years instead of five; the law distinctly states that the term shall be five years, but by some mistake in the office of the Secretary of State, the papers were made for four instead of five years, so that this year the terms of two members of the board will expire, instead of one. I have written to Governor Griggs in regard to the matter, and I do not think that it will really be necessary for the society to recommend Dr. Adams; but, as a matter of safety, I would suggest that we recommend him for his own unexpired term of one year. I make that as a motion.

The above motion was regularly seconded and carried.

The election then proceeded:

Member of State Board of Examiners: Dr. G. Carleton Brown, of Elizabeth, N. J.

Membership Committee: Dr. W. Woolsey, Elizabeth, N. J.; Dr. W. E. Truex, Freehold, N. J.; Dr. F. Edsall Riley, Newark, N. J.; Dr. William L. Fish, Newark, N. J.

The Chairman of the Committee on Membership reported favorably upon the following candidates:

Frank L. Wright, Red Bank, N. J.; W. G. Chase, Princeton, N. J.; C. F. Inglis, Paterson, N. J.; Robert S. Watson, Orange, N. J.; W. M. Sullivan, Passaic, N. J.

And upon a ballot being taken, all of the above gentlemen were regularly elected to membership.

The newly-elected officers were then installed, all making brief and appropriate speeches.

SECRETARY MEEKER.

Before adjourning I move a vote of thanks to Senator James A. Bradley, to the exhibitors and the hotel men, and to the many others to whom we are indebted for many courtesies.

The above motion was regularly seconded and carried.

The meeting then adjourned *sine die*.

There are a few things we have all noticed in our private practice:

First.—We are more cheerful in our work when we are sure of our cash, notwithstanding all charitable talk to the contrary.

Second.—That most people are willing to pay for not being hurt.

Third.—That the last tooth excavated was the most painful. That is also liable to be the case with the last extraction.

Fourth.—That some people are so full of suggestions to the operator that we wonder how they could have mistaken their calling.

Fifth.—How beautiful some people's teeth were (to hear them tell it) before they were lost.

Sixth.—That bills presented promptly are liable to be paid more cheerfully.

Seventh.—That people who speak of $50 as a trifle are generally a little short and slow pay.

Eighth.—We have all noticed, with a big "A," that plates fit better After they have been paid for.

Lastly.—Most of us will admit that there are times when we are wofully deficient in backbone.

Dr. F. A. Metcalf, Pacific Stomatological Gazette.

ALLOY AND CEMENT FOR FILLINGS.

Procure good alloy and cement, mix the alloy as dry as will mix well; press into a flat button, the thickness of a silver dime, for an ordinary cavity. Mix the cement so as to bring it to its stickiest condition; then, the cavity having been dried and kept so, fill with the cement, and quickly, before it begins to set, press onto it a plate of amalgam about the size of face of exposed cement. Press this plate into the cavity, allowing cement to escape slightly at all parts so far as practicable. With the ball end of very small burnishers perfect the union of amalgam to the edges of the cavity, and then contour by the addition of necessary amalgam. Experience with this plan for over eleven years gives me such faith in it that I have not filled a single cavity with amalgam without the cement for five years past, and I believe the time will come when the use of amalgam without some such lining of the cavity will be considered malpractice.—*American Journal.*

OUR QUESTION BOX.

QUERY —(1) *When approximal cavities extend below the gum border, how do you force the gum back?* (2) *How do you treat for the inflammation and pain?* (3) *Do you apply the dam, if so, how do you accomplish it; if not, how do you control the moisture?* (4) *With what do you fill the cavity?*

ANSWERS—(1) By means of rubber-dam and clamp. (2) Dry the gum and paint a few minutes before the operation with a freshly made solution of cocaine 20 per cent. (3) I apply the dam in all cases. (4) Gold or gutta-percha. *J. Ashley Faught, Philadelphia.*

(1) We go slow, take it easy up here in the country, and pack space between the teeth with cotton dipped in thin solution of oxyphosphate; it soon hardens, swells some, and does the business in about two days. (2) As no inflammation or pain is produced, no treatment is required. (3) Always apply the dam. If decay extends far down, follow the dam with matrix (specially made for the occasion from thin steel) and apply Perry separator to hold in place. (4) Always fill the cavity with whatever the case suggests to save the tooth. *Frank B. Darby, Elmira, N. Y.*

(1) Usually force gums back with ligatures and clamps; rosin and ether or sandarac varnish holds dam and ligatures in place. By forcing phosphate between teeth, allow it to harden. (2) Iodine and aconite, or iodine and glycerine. (3) Use dam. (4) Fill with tin and gold or by Clapp's method; like copper amalgam in chalky teeth.

A. Eubank, Jas. H. Allen, Birmingham, Ala.

(1) By pressure with cotton moistened with oil of cloves, or eugenol, or oil of cassia, or campho-phenique, followed, if necessary, with "temporary stopping." (2) Proper utilization of above means *always* prevents inflammation and pain. (3) Never use the dam until after the cavity is filled up to gum line unless it can be done *absolutely without infliction.* I control moisture by napkining, using method Nos. 1, 2 or 3 right or left, as indicated, aided by bibulous paper or old fine muslin, if needed. (4) In my opinion fillings in such cavities should always be "guarded"—by means of *soft* gold, tin foil, gutta-percha stopping, submarine amalgam, or coin amalgam; the remainder of the cavity to be filled in consonance with the guarding. *J. Foster Flagg, Philadelphia.*

(1) With cotton. (2) Do not think that cotton will cause inflammation or pain enough to be bothersome. (3) Use some form of matrix, generally one manufactured on the spot for the case, and then apply the rubber-dam. Always. (4) If the cavity is in bicuspids or back of them, some first-class amalgam first, then the remainder of the cavity with gold. Front of the bicuspids with gold. Cohesive.

A. H. Gilson, Boston, Mass.

The gum may be forced away with cotton and sandarac varnish or with gutta-percha. If hypertrophied, remove with electric snare. I prefer, however, to first apply the dam, turning the edges inward, and nicely bur-

nish a matrix into position, lancing around the borders of the cavity if necessary. This method is not painful, as the pressure of the dam soon forces the blood out of the tissue and cocaine may be applied to produce insensibility. I find, by care and judgment, that when the cavity is well prepared, it will be sufficiently dry to fill with any material; but I prefer gold. Have used tin and gold at the cervix and like it very much. Have not used amalgam *i. e.*, amalgam at the cervix and finish with gold, for I fully realize the almost utter impossibility of finishing the amalgam smooth enough so that it will not irritate and keep the tissue in a constant state of inflammation. *C. Frank Bliven, Worcester, Mass.*

(1) I often require two sittings—first sitting, I force gum out of cavities with small pieces of cotton saturated with listerine and aconite, then pack the space hard and well with dry cotton; this swells and drives up the gum in twenty-four hours considerably, aconite preventing much inflammation. (2) I am charmed and enthusiastic over the pleasant effects of listerine and water, equal parts, for the after-pain of wedges and ligatures. When there is much inflammation, I use fluid extract of dogwood. (3) I use the dam when possible and find many cases possible when I use binding wire for a ligature. This wire, about the diameter of a pin, is very pliable and soft. Cut your holes well apart in the dam and put on, then use the wire instead of silk or flax; if it will not pass between the teeth, thread it through at the necks, then twist the two ends of the wire with narrow flat beak pliers, shoving up on the inside, and it will carry the dam and gum up beautifully and hold far better and higher than any fibre ligature. (4) I use soft gold, hand pressure, when I can; it gives better results to me than any other metal, and when I cannot use it, I am very partial to gutta-percha. *C. Bunting Colson, Charleston, S. C.*

(1) Separate teeth; partially prepare cavities; then pack entire space with gutta-percha and leave one week. (2) None; time and Nature will do that. (3) In filling same permanently, use medium rubber-dam with silk ligature, which I find practicable in most cases. (4) Fill with whatever material your case and your judgment dictates.

Hyman Roosa, Kingston, N. Y.

(1) Packing with cotton (saturated with sandarac varnish) or gutta-percha. (2) Hot water, followed by listerine full strength. (3) Place dam on as in other cases and force beyond cervical border of cavity, with matrix band cut to approximate shape of cavity at that point; this to be held in place by double wedges, or matrix clamp, like Marshall's. Strong solution of cocaine, applied to gums, will facilitate the operation. (4) Gold, tin, amalgam or gutta-percha, according to condition of cervical border. *W. T. Martin, Yazoo City, Miss.*

(1 and 2) *I use cocaine.* It not only makes gum insensible to pain, but retracts it, so that there will be no wound and inflammation to treat. Take time for it and charge for it. (3) I use the rubber-dam or not, more frequently not, and fill with all known filling materials as my judgment indicates in the particular case in hand. (4) I am a believer in judgment, knowledge, and fertility of resources as opposed to "methods."

Herbert A. Birdsall, Buffalo, N. Y.

(1) With cotton rolled in thich chlora percha, allowing it to remain a few days. (2) No treatment required. (3) No. Dry with hot air, paint with chlora percha, use gutta-percha wedge if there is room. Use napkin, of course. (4) Front teeth with gold, start with cylinders. For back teeth in difficult cases use guard filling of amalgam, fill with temporary stopping and at next sitting use rubber-dam and fill with gold if desired.

S. B. Palmer, Syracuse, N. Y.

(1) In cases of excessive proximate decay, when this has extended below the gum margin, I have produced an absorption of the gum, prior to the application of the rubber-dam, as follows: I wrap a piece of dental floss or gilling twine twice or more around the tooth, forcing this well up on the neck of the tooth, and filling the remainder of the cavity with red base plate gutta-percha, forcing this likewise well against the ligature. This will often be but an initiatory step. At the next presentation I will be able to see the condition of affairs better, when I may either repeat the procedure with the ligature as described, or force the gutta-percha between the teeth, crowding it well against the gum margin at the neck of the tooth. It will often be found, in these cases, that there is *a little tongue* of gum which extends into such cavities . I do not attempt the absorption of this, but I dissect it away with a sharp-pointed abscess lance, and, when the bleeding has subsided, proceed as above. (2) This query is a little ambiguous. For inflammation of the peridental membrane, I treat with iodine and aconite, equal parts, bathing the gums around the affected tooth. I sometimes resort to massage, with good effect, rubbing the gums about the inflamed tooth with the end of the finger, until relief is obtained. If the inflammation comes from "pulpitis," I apply the dam, dry out the cavity, and soothe the pain and the inflamed condition of the dentine by making a paste of acetate of morphia with oil of cloves; I take up this paste with a few shreds of cotton floss, and rolling this into a little pellet, apply it in the cavity, securing it in position with temporary gutta-percha stopping. The pain in these cases generally subsides at the expiration of an hour, or less. (3) I almost invariably apply the rubber-dam to all teeth that I fill; *invariably* when the decay is proximate. For all molar teeth I use a clamp, but for teeth farther forward, either in the upper or lower jaw, I use no clamp. If decay exist between a molar and a bicuspid on either side, or in either jaw, I punch not fewer than three holes in the dam. The hole which encircles the molar tooth I make larger. Through this I pass the jaws of the clamp, and, folding the dam over the handles of the clamp-forceps, so as not to interfere with the view, I apply the clamp to the molar tooth. I then fasten the ends of the dam out of the way with the rubber-dam strap around the patient's head. I then stretch the dam beneath the jaws of the clamp, using for this a ball burnisher bent at right angles. I then stretch the two other holes over the two bicuspids, forcing the septum of rubber between these teeth with waxed ligature silk. I ligate each of these teeth and place a knot on the inside, not merely to keep the dam from slipping, but because by the aid of this knot I can apply an instrument to it and thereby force the dam well down on the neck of the tooth. I sometimes dispense with the clamps on the molar, by passing the ligature behind the bow of the clamp, between the two molars, and under the jaws of the clamp, making quite a large knot in the

ligature which rests on the lingual surface, and then tie tightly to the tooth on the buccal surface. In certain cases I apply the clamp to the molar tooth *first;* and then, by soaping the holes of the dam, it may be passed over the clamp without tearing. This is the best way I know of controlling moisture or hemorrhage when filling a cavity of decay in a tooth. Other cases of applying the dam are so simple that the mode has been generally described or fully known. (4) In cases of pain from pulpitis such as I have alluded to in query 2, I generally use a filling of phosphate of zinc or of gutta-percha. In cases where the decay exists, as in query 1, I use gutta-percha, phosphate of zinc or amalgam, according to the indication. *Theodore F. Chupein, Philadelphia.*

(1) When necessary to force the gum back I usually do so by filling the cavity with cotton saturated with a thick sandarac varnish, allowing it to remain a week or two. It is a mistake to hurry this part of the operation. If the cotton is removed after being in position a few days only, the natural tendency in the gum tissue to resume its position is a serious embarrassment. The cotton will usually remain in place, and causes little or no discomfort to the patient. After the gum tissue has been held back some time, this tendency to immediately return to its former position is largely overcome. (2) This seems to apply to cases where the gum is forcibly pressed back immediately before the operation. This I do not do, unless the cavity is so little below the gum line that it can be accomplished in applying the rubber-dam. In such cases the irritation is so slight that treatment is rarely called for. (3) I use the rubber-dam if it can be be applied without much discomfort to the patient. In those cases where the cavity extends far below the gum line I do not attempt to apply it, believing that, in many such cases, by obscuring the cervical margin, it is more in the way than of service. Occasionally, when I desire to use gold for filling, I fill the lower portion of the cavity with amalgam, and at a subsequent sitting apply the rubber-dam and complete the filling. I have no set methods of controlling moisture, bleeding, etc., in the absence of the rubber-dam, other than those generally known and used, depending largely on rapid work and the judicious use of plastics. (4) I prefer, when admissible, especially for that portion of the cavity below the gum line, gutta-percha, or some one of the various amalgams.

William H. Trueman, Philadelphia, Pa.

I assume that the queries relate to cavities on the approximal surfaces of molars and bicuspids, and answer accordingly.

(1) Depending on circumstances, either a filling of gutta-percha, *properly placed*, to be worn for a few days, or cotton, dipped in a mixture of equal parts of oil of cloves and carbolic acid, pressed in the cavities sufficiently to displace the gum and permitted to remain about fifteen minutes, or by the use of a matrix. (2) With *careful* handling inflammation is usually so slight that it requires *no* after-treatment. The unusual cases will commonly yield to a wash of menthol and benzoinol, twenty grains to the ounce. The tannate of glycerine may be alternated with this or used instead. (3) Commonly I apply the dam, and, if there has been proper preparation, there is no unusual trouble attending it. My method in these cases is, after the rubber is applied, to slip it under the

margins of the gums with the aid of the suitably shaped burnisher, or by a strand of floss, drawn between the teeth. If this does not suffice, a matrix has always, in my experience, given complete control of the conditions. I rarely use ligatures and avoid wedges, in these cases, as I would wish to avoid his Satanic Majesty. The matrix which I have found most useful for the class of cases under consideration is that invented by Dr. Louis Jack. (4) Tin and gold folded together at cervix, finishing the filling with gold, or amalgam in combination with gold, or amalgam for the entire filling. Very rarely do I use gold alone in these complicated cases. *J. W. Canaday, Albany, N. Y.*

(1) If gum be thickened and fungoid, after thorough opening up and separation, excise gum; for the bleeding will deplete the congested condition and the removal of the tissue will facilitate the operation. Then with small perforations in the rubber-dam, apply over the two teeth between which the cavity exists. Ligature decayed tooth with No. 18 binding wire drawn with pliers securely and closely around tooth as when making a measurement for a gold crown, after which, with a small instrument, press and bend the wire entirely below the cavity of decay, which, if the wire be large enough, and properly annealed, will be sufficiently stiff to form a compress on the gum and prevent further bleeding or weeping. (2) As pain and disease are the result of the gum cutting against the sharp edge of the cervical wall of decay, the excision of the gums, and the hemorrhage incidental thereto, will prove a curative, especially so if the filling be properly and thoroughly contoured, to the level with the surface of the tooth. A 10 per cent. solution of freshly dissolved crystals of cocaine, painted on the gum, will prove a benefit before the dam is applied; or, if time will admit two sittings for the patient, open up and separate the teeth and excise gum at first sitting, and, with a closely rolled pledget of lint, saturated with campho-phenique, press closely between the teeth, till gum be pushed out of the way, and after three days the operation may be completed much easier. (3) Yes; and apply over the teeth front and back of the approximal space, using an ordinary clamp on the posterior tooth; and, if the decay be on this tooth, I apply the ligature wire around it with a silk floss ligature around the front tooth, and the reverse, if the decay be posterior of the anterior tooth. (4) Gold is always reliable if the work is to be permanent, and it can almost always be used by cutting down the grinding end of the tooth, exposing freely to view the whole cavity. Contra-indications may justify cement amalgam, or gutta-percha filling, as when applications of arsenic be applied for nerve destruction, when hermetical sealing is indispensable. If perfect security against moisture can be accomplished, the best material possible should be used, and gold would be my choice.
E. S. Chisholm, Tuscaloosa, Ala.

(1) Either by packing with cotton, or by driving a wooden wedge as high up as possible. (2) Cocaine and tannin. (3) I have never been successful in applying the rubber-dam; use napkins and absorbents. (4) Usually with amalgam, gutta-percha or tin.
E. B. Davis, Concord, N. H.

(1) By forcing the gum back with cotton, making two sittings for the operation, or by cutting away at once. (2) Don't treat much; use cocaine

on the gum. (3) I do, and do not, use the dam, as the case may be. (4) Soft gold for cervical wall, and cohesive gold for finishing, or gutta-percha for cervical margin and amalgam.

W. R. Blackstone, Manchester, N. H.

(1) By hard ball of cotton and sandarac varnish, pressed firmly between the teeth and into the cavity, compressing the gum producing absorption, which it will do in a few days, in extreme cases changing two or three times. (2) The pressure of the cotton reduces the congestion and the gum returns to nearly a normal condition without treatment. (3 and 4) In extreme cases, remove the cotton carefully and fill the lower portion of the cavity up to the desired height with amalgam (prefer copper), and, if desired, finish with gold in the usual way, using the dam to protect from moisture. *A. P. Southwick, Buffalo, N. Y.*

(1) If cavity is to be filled with gold, I do not attempt the rubber-dam at first; after cavity is prepared begin filling with tin and gold, having moisture dammed back with absorbent cotton, or napkin, held in place with clamp; fill a little above gum margin, then burnish down to wall of cavity; now place on your dam, then dry out cavity with bibulous paper, or spunk, followed by hot-air blast from chip blower or hot-air syringe; next use absolute alcohol, then a little chloroform, then hot-air blast; now your gold will stick as though no moisture had ever been admitted into cavity, and what was a difficult cavity is now simple. (2) I find nothing better than a strong solution of chlorate of potash and a little cologne-water, for inflammation caused from application of rubber-dam, used as wash every half hour. (3) If cavity is in lower tooth, I always use dam. (4) As a rule, with gold.

R. C. Young, Anniston, Ala.

In back teeth I force the gum down, by filling with soft gutta-percha pressing on the gum. The gradual swelling that takes place in the filling material will drive the gum back, keeping a healthy surface. After a time the cavity can be quite easily filled with any material suitable for the place. I apply the rubber-dam when moisture can be excluded by subsequent ligatures and wedges without too much pain to the patient. I also drive the gum back by cotton and sandarac plugs.

Chas. T. Howard, Rochester, N. Y.

CURRENT THOUGHTS.

LINING ROOT-CANALS.

By L. P. Bethel, D.D.S., M.D., Kent, Ohio.

In the treatment of teeth with devitalized pulps, a medicament that not only sterilizes the contents of the root-canal, but leaves behind an antiseptic deposit which prevents the subsequent development of micro-organisms, would be an ideal disinfectant.

With this thought in mind I began a series of experiments, some months ago, taking nitrate of silver for the first agent.

We know how useful this salt has been in the treatment of certain superficial cavities in the teeth of adults and various cavities in the teeth of children, preventing decay as long as the discoloration remains. If in this location, where it is exposed to the varying conditions of the oral fluids, it will prevent subsequent decay for a considerable time, why should it not remain unchanged for a much longer period when sealed within a root-canal and remain, perhaps, as a permanent barrier to the development of germs.

Repeated attempts at pumping it into the canal by means of wooden points, broaches, etc., proved unsatisfactory, for the silver nitrate solution would not go beyond the point of penetration of the broach, and the cases most desired to treat were small, branching, or tortuous canals, where it was impossible to pass even a broach. By the aid of cataphoresis, however, the silver nitrate was forced beyond where the broach extended, into small canals, etc., as these specimens show. Microscopic examination shows that the nitrate of silver is forced, by means of cataphoresis, to a greater depth into the tubuli of the dentine, more thoroughly sealing them than when applied to the surface by ordinary mechanical means.

In the preliminary experiments out of the mouth, the silver nitrate was used in connection with various agents, such as sulphate of soda, 1 per cent. H_2SO_4, etc., but the silver nitrate being itself a good conductor of electricity, it was found most satisfactory when used alone in an aqueous solution, made from distilled water to avoid all organic materiai. Various strengths were employed from 10 per cent. to a saturated solution, those giving the best results being from 40 per cent. to 75 per cent. solution.

The process of application is a simple one: Adjust the rubber-dam, and if the crown of the tooth needs protection from discoloration, apply a thin coating of melted wax to the interior surface. Next apply the silver nitrate solution to the canal by means of a wooden tooth-pick, or other suitably shaped piece of wood, pump it downward into the canal as thoroughly as possible, place electrode into pulp canal opening, then a pellet of cotton, saturated with the nitrate solution, around electrode at the orifice of the canal, and the electricity does the rest.

The electric current turns the cotton first a light green color, which grows darker until almost black, and serves as an indicator. The time of application will vary according to the condition of the root-canal, whether well opened, its size, strength of current, and per cent. solution of the silver nitrate. The higher per cent. solution the better conductor it makes and the quicker it is deposited. From one to five minutes seems to be ample time.

After removing the electrode, cleanse the pulp cavity and canals as well as possible with dilute ammonia to neutralize the nitric acid set free, and also to hasten the darkening of the nitrate of silver.

In the majority of practical case I have been using the nitrate after the root-canal has been sterilized, although in several cases it was used without previous sterilization, the cavity sealed, and no after trouble experienced.

This root-canal lining is not advocated for all teeth; indeed, the practitioner must use judgment in its application. It would not be advisable in the anterior teeth on account of discoloration, or teeth where the foramen is large, as teeth not fully developed, and others, on account of forcing it through the apex of root. Just what would result from such an accident I am unable to state from practical experience. I have tried to force the solution through the apex of a normal root, out of the mouth, but in every instance it has penetrated just through the foramen and stopped, due, possibly, to forming an albuminate when coming in contact with tissues at the end of the root, and thus limiting its own action.

The object of these experiments is to find a means of treating root-canals that are too small to admit a broach, those branching or tortuous, those in flat-rooted teeth, etc., where it is doubtful about inserting a protecting root filling. If such root-canals are thoroughly lined with the nitrate solution, and it penetrates somewhat into the tubuli, as it does, the probability is that there will be no subsequent trouble, even though the root filling should

be defective. And, indeed, it is a question if root filling would be necessary at all, especially in small canals.

Roots treated by this process out of the mouth, when filed, reveal the outlines of the canals, their restrictions, obstructions, and unlooked for branches that probably would not be found in ordinary root treatment and filling, and left, perhaps, as a harbor for bacteria in which to multiply and cause subsequent trouble.

This is only the beginning of a series of experiments in this direction. What the future may disclose time alone will tell.—*Ohio Dental Journal.*

DENTISTRY IN INDIA.

By E. A. Lundy, D.D.S., Simla, India.

The major portion of the European population of India are in the government service, and belong to either the civil or military barracks. The winter capital is Calcutta, where the Viceroy and others of the leading officials of the government reside from November to April. Simla is the summer capital, and is 1,100 miles north in the Himalaya Mountains, at an altitude of 7,000 feet. The climate during April, May and June, and until the middle of July—when the rainy season commences—is very pleasant; and even during the two months of the rainy season is quite tolerable. When the rainy season ceases, about the middle of September, then the climate is exceptionally pleasant, and October and November are as fine as one could wish. The temperature before the rain is from 65 degrees to 90 degrees, and during the rain from 63 degrees to 70 degrees; after the rain it is cooler and the most agreeable season of the year, the temperature averaging from 55 degrees to 70 degrees, and as low as 40 degrees before the middle of October.

There are a number of hill stations; but, with the exception of Darjeeling, the north of Calcutta having no railroad, one has to stage it fifty-eight miles to Simla. During the months of April and October there are some thirty stages per day, as at this time occurs the rush up and down, and one has to engage passage weeks ahead. The hill stations are quite healthy, as a rule, and are the sanitariums of India, and were it not for them the European portion of the inhabitants would have to leave India. During the season they are constantly coming and going on short leave, that is, the gentlemen; the ladies, for the greater part of the hot season, remain in the mountains.

Outside of Bombay and Calcutta all the dentists go to the

mountains for the summer, having to move up their full outfit, and remain about five and a half months, and then return to the plains for the winter, as the hill stations are nearly deserted during the winter, except the native population.

I give this short description of the condition existing, so that you may judge of the European's life here, it being necessarily quite nomadic.

Outside of a few native princes, the practice of the English dentists is confined to the Europeans. There are a number of native dentists, but their style of practice is rather primitive. There are, to my knowledge, less than a half dozen American dentists in India, but there are a number of English. There is no dental law here, nor dental societies; and, in consequence, there is a similar feeling existing to that which we had before the advent of our American societies. I presume the great reason is, that few of the foreign dentists are here with a view of permanency. The fact of there being no dental law does not signify that any dentist can come here, no matter what his qualifications, and get a successful practice.

English people are very conservative, and slow to take up with a new man; unless he comes well recommended he will have a hard time. India, of all places, is a hard country to get stranded in. There are many reasons why a representative American dentist could not be content to remain here; the most prominent of which is that a dentist is not received professionally or socially as in America, and a horse-doctor in the government service is considered his superior socially, simply because he is in the service. If you are not in the military service you are only tolerated.

The average physician here seems to work against rather than for the dentist. I have not, to my knowledge, had a patient sent me by a physician in India. One reason for this is that nearly all physicians here are in the service, and are not catering for private practice; and also, because it is only within a short time that dentists have had any social or professional recognition in England; and I am told that very few are as yet so received.

The style of practice here is rather in the insertion of artificial than to the saving of the natural. I am pleased to say, however, that I have no difficulty in continuing with the more modern style, although the first is much more remunerative here; as, owing to the latter being new in India, very few are willing to pay a reasonable fee for it. I cannot get as good fees here for high-class work as you do, owing in part to the depreci-

ation of the rupee, this being a silver country. I do not wish to be covered quite over with cobwebs on my return to America, so I continue in the modern style.

I find that the average Englishman in India has no better teeth than our people; many are so situated that they cannot always have done what they might wish to. The climate of the plains is very unhealthy, as a rule, and there are very few who have been out here long whose constitutions are not more or less undermined, and, of course, the teeth suffer in consequence. And then one is constantly being exposed to cholera or small-pox, as these diseases are always more or less epidemic; and while you may not go near the infected quarter, yet your servants—of whom one has to keep a large number, and who have the whip-hand of you as long as you remain in India—are constantly going back and forth. The wonder is that the entire native population do not die off, as they have no regard for sanitation, and are constantly drinking and using filthy water in preference to clean, saying that it has more taste to it.

I find pyorrhea very prevalent here among Europeans, and I have been told by a number of my patients that I was the first here to suggest treatment of it. I have had a number of cases that I have treated quite successfully; but I fear that when I am gone they will return to the former condition, as once these pockets are formed, they have to be cared for. I attribute the cause in a great measure here to the continuous eating of meat; it is very difficult to get a suitable vegetable diet in India.

I do not know that I can give you anything new in the way of treatment. I am still following out the generally accepted great essential—that of thoroughly removing the calcareous deposits as it is possible to do, and, after that, local and systemic medication. I am using the 3 and 5 per cent. solutions of pyrozone with excellent results; am also using chloride of zinc, trichloracetic and lactic acid, and a saturated solution of caustic potash in iodine; and for systemic treatment, I have excellent results with McKesson and Robbins' tartarlithine; I got response to it in my own mouth within twenty-four hours, and am much pleased with it.

The natives do not seem to suffer very much with pyorrhea, their diet, no doubt, having to do with it; they live principally on coarse-made bread, rice and fish. I am now speaking of the lower classes. The higher classes, I fear, do suffer from it, as they eat of the more harmful diet; and I have had two cases

from the higher native class, one being a Prince who had it very badly.

I might mention two little things that I have accidentally learned. The first is an aid to the filling of nerve canals with gutta-percha cones. After you have moistened the canals with chloro-percha, or any other medicaments preferred, cut the cone shorter than the canal, and, after packing it in loosely, take the hot-air syringe using the air just warm enough to soften the gutta-percha, then with cold instruments press the filling to place; by doing this, you gain in two ways, you dissipate the excess of chloro-percha, and are not troubled with your instruments sticking to the filling.

In making counter-dies, instead of putting on mint, chalk or whiting, sprinkle the die with French chalk, and you will have no trouble if you use it carefully.

Now as to the pleasure of practicing dentistry in India. One has to do all the rough work in the laboratory; it is impossible to teach native servants so that you can rely on them. Just when you think you have reached that stage they blow out the safety valve of the vulcanizer, or take a good impression and cut it out of the cup and throw it away, just to get the cup clean. And one has to employ not less than five servants to get on at all, as they are continually objecting to do this or that, on account of their caste. And they have an unusual number of grandmothers to bury. I have had a boy ask leave of absence three times within six months to bury some grandmother.

Another disagreeable feature of practice here is that patients, instead of coming to the office in the ordinary way to make an appointment, will write asking how much you will charge to fill a tooth or to make a plate, and when you can see them. I have from three to six such replies to make every day, and, there being no telephonic communication, it is rather trying.

Another thing regarding the employment of servants: Their pay being small, they are continually stealing. I keep everything under lock, and yet they fit keys and continue to steal. The ordinary European housewife here, if you were to judge her by the bunch of keys she carries, would be taken for a turnkey of a prison.

Having taken this trip for my health, and it having been very beneficial, I shall return to California next year, it being the only place I care to live or practice in. I have been in practice for the last four months at Cairo, Egypt. I will spend the

summer season at Simla, India, and return to Cairo for next winter season. I met a number of Californians last winter there. The change between the two climates is quite beneficial to me; but California has a better climate than either, if one is seeking climate only, and the surroundings there are more compatible to a white person. I have not felt at home since I left there; and it will be a great pleasure to me to settle down among you again.

You have my hearty congratulations for your continued advancement since I have been away; and my best wishes for a successful convention.—*Pacific Stomatological Gazette.*

BACTERIA IN THE MOUTH.

An exceedingly important question arises with regard to the relation of the streptococci found in the normal mouth to the streptococcus which is the cause of disease in the human subject. Is the streptococcus of the normal mouth a harmless saprophyte, which is only related to the streptococcus of disease by certain similarities, just as the hay bacillus resembles the anthrax bacillus? Or are the two microörganisms varieties of the same species, which are capable, under appropriate conditions, of being mutually convertible? Can the normal streptococci of the mouth invade the body and produce disease under circumstances which lower the resistance of the body?

We will give a few examples to make these questions quite clear. In scarlet fever streptococci often invade the tissues of the tonsil, and may spread to the other tissues of the body, producing septicæmia or pyæmia. The streptococci cultivated from the resulting lesions are quite similar to the streptococci found in other septicæmic conditions, and possess a similar virulence when tested upon animals. It is a very enticing theory that the normal streptococci in the mouth have been enabled to invade the tissue of the body in virtue of the lowering of the resistance caused by the virus of scarlet fever, and that in their passage through the body they have increased in virulence. A similar example may be given in the case of puerperal fever, which is due to the invasion of the body by streptococci. Now in the normal vagina, streptococci are frequently present, and it is suggested that the lowering of resistance of the body during parturition has enabled these streptococci to invade the body; that, in fact, a process of auto-infection has occured. Such a view must be accepted with the greatest caution, on account of the bearing

it has upon our views of the etiology and prophylaxis of infective diseases. It certainly does not agree with our knowledge of the etiology of puerperal fever, for this disease is generally conveyed by the introduction of microörganisms from the outside, by means of infected instruments, or the hands of the operator. The etiology of scarlet fever is also opposed to the same view.

Besides, wounds of the mouth heal very rapidly, and this we should hardly expect if the ordinary mouth streptococcus were identical with that of disease. On the other hand, operations about the mouth may be followed by a streptococcal pyæmia. In a case of this kind the extraction of a tooth was followed by signs of acute septicæmia, the patient only recovering after necrosis of the alveolus of the upper jaw. Such cases may be explained on the auto-infection theory just mentioned, but another explanation is possible. Virulent streptococci may have been introduced from the outside by infected instruments, or they may have been accidentally present in the mouth.—*Dr. J. W. Wasbourne and K. W. Goadly, British Journal of Dental Science.*

LOWER PLATES.

By Dr. J. F. Fribley.

The dentist who can make an artificial denture for the lower jaw which will subserve the purpose for which the lost dental organs were used, to the extent that the patient feels a sense of satisfaction and gratification in the wearing of it, is truly a very remarkable and ingenious person.

I have little to say about lower cases where the teeth are all out, except to offer one method of taking impressions, when the ridge is hardly perceptible, and the muscular attachments are so near together on the top of the ridge, that there is hardly a line of space where the plate could rest undisturbed by the action of the muscles, in movements of the jaw and in mastication. In such cases I exercise care in taking the impression, having the plaster not too thick. Just as soon as the cup can be inverted without the plaster dropping out, I at once put it in place in the mouth, requesting the patient to move the jaw as in the process of mastication, and being careful to hold the cup firmly and to follow each movement.

This is kept up until the plaster is of a putty-like consistency. Then the jaw can come to rest, as there can be nothing gained by keeping up the movement.

Upon removing the impression from the mouth there are to be seen small grooves, depressions and elevations, which correspond exactly to the muscles, depressions and elevations of the ridge of the jaw, and when the plate is made it will fit perfectly and not be displaced during the process of mastication, or in other movements of the jaw. In partial lowers I use the same precaution in taking the impression as in full cases where the same conditions exist.

I wish to give a description and process of making a lower partial plate when the posterior teeth are out on both sides.

It consists of a plate with a clasp on the buccal surface only, and a swaged aluminum band vulcanized into the rubber which attach the posterior teeth. After taking an impression I fill with metal (moldine), being careful to get an exact copy of the lingual surfaces of the remaining anterior teeth and the gums and gum margins. Then I make a counter die and swage an aluminum band to fit the lingual surfaces, having points of aluminum fitting into the interproximal spaces—this is of the utmost importance. The ends of the band should extend far enough back into the rubber on either side to give a firm attachment.

Then fit a band of clasp metal to the buccal surface of the teeth, proximating the denture on either side, and having the inside end of the clasp to fit and extend around the distal surface of the tooth till it touches the aluminum band and fits up to it.

The aluminum band or strip which fits the lingual surfaces of the teeth intact should be tempered to make it springy, and when the plate is pushed to place the points of the band drop into the interproximal spaces, and, with the clasps on the outside of the teeth next to the artificial denture, it makes a very comfortable and well-adapted plate.—*Dental Digest.*

A CASE OF MAXILLARY FRACTURE.

By Dr. O. C. Moon, Beaver Dam, Wis.

In a case of simple fracture, usually but little ingenuity is required to arrange a suitable appliance, but in complicated cases you will often find ample use for your thinking-cap.

I was called on last summer to assist in the treatment of a case that interested me greatly, and will give a brief account of it:

Miss S., a teacher in the public schools of Beaver Dam, while passing along the street on the Fourth of July, was struck

in the chin by a piece of iron which had evidently been fired from a toy cannon.

It struck a little to the left of the median line, and, cutting through the bone, plowed its way along the lower and inner edge of the bone, badly lacerating the floor of the mouth, the submaxillary gland and root of tongue, and imbedded itself in the neck, back of, and a little to the left of, the trachea.

Dr. Mackey, of Milwaukee, was immediately telegraphed for and came out that evening. He found a piece of the bone gone the entire depth of the jaw, and perhaps three-fourths of an inch in width, together with the left central, laterals and cuspid teeth.

The lower edge of the bone on the left was also splintered somewhat with a great many small fragments loose in the wound. The small, loose particles were removed, and an effort made to find the missile.

It was found impossible, however, to locate it without running too great risk, and so was left for the time.

The wound was dressed carefully and the two ends of bone fastened together with a silver wire. This not proving sufficiently firm, I was called in and wired the adjoining teeth together as an additional support. Still further support being given by a splint and bandage under the chin.

The case was then left in the charge of a local physician.

Even after the ends of the bone were brought together as well as possible there was still a space in the lower part large enough to insert the finger, and through this, partially, the wound was dressed.

After a few days it was found that there was a strong tendency to vertical displacement, the shorter section on the left being inclined to draw up and the other part down, by the action of the muscles.

To overcome this I fitted, as best I could, a narrow plate of aluminum to the lingual surfaces of the lower teeth. This was then lined with a thin coating of gutta-percha, and while warm pressed into place and wired to two or three teeth on each side of the fracture.

This answered the purpose nicely for a time, and permitted the proper treatment of the wound in the soft parts of the mouth.

On the twelfth day the bullet or slug worked into the throat and was recovered, much to our satisfaction.

It was then found to be a piece of iron three-fourths of an inch by one-half inch in size, with a curved part or hook at one

end, and the wonder is that it could pass so deeply into the neck at the point it did without doing more serious damage.

Soon after this the teeth to which the plate was attached began to loosen from the continual strain upon them, and it became necessary to resort to other means of holding the parts in place.

Heretofore it had seemed necessary to be able to get to the interior of the mouth readily in order to keep it in an antiseptic condition. The soft parts were so badly lacerated, including the submaxillary gland, that it was necessary to make frequent and thorough use of antiseptic washes. Now, however, the interior of the mouth was healing so nicely that I decided to put in an interdental splint.

This was made by taking an impression of the upper jaw, and making a rubber plate for it, extending over the molars and bicuspids, and with enough thickness at the edges to prop the mouth open somewhat. This was then tried in the mouth and the thick portions dressed down till the lower teeth rested firmly against them with the broken parts in their proper relation to each other.

The thickened sides of the plate were then roughened somewhat and pieces of gutta-percha softened and moulded onto them, and the splint, with gutta-percha still warm, placed in the mouth and the lower teeth pressed up into place—the aluminum plate having been previously severed. When the gutta-percha was cold, a four-tailed bandage around the chin and over the top of the head was all that was necessary to hold the parts in place, and the space between the upper and lower teeth in front was ample to allow the taking of food and for further use of antiseptic washes.

The bone being held firmly in place, united without further trouble; but such a large section being lost, the jaw is now, of course, much narrower than before, and the teeth do not antagonize with the upper ones, but close entirely inside of them.

The chin having been originally rather broad and prominent, the reduction in its width really detracts but little from the general appearance of the face. But the teeth failing to antagonize, are left more ornamental than useful, and, like the mills of the gods, grind but slowly.

This trouble has been partially overcome by making a plate without teeth, fitted to the roof of the mouth and thickened at the edges to antagonize with the lower teeth. This answers the purpose fairly well.—*Dental Review.*

SALIVARY CALCULUS.

By W. H. Truman.

Much has been written of late enforcing the importance of keeping the teeth absolutely free from deposits, much, in my judgment, has been thoughtlessly written. In the first place, in many mouths it is a practical impossibility to maintain this freedom from deposits insisted upon. They are beyond any means the patient can safely employ. They collect so rapidly that nothing short of daily or weekly visits to the office will suffice, and this, in a large majority of cases, is impracticable. And again, an attempt to carry out so strict a regime would probably prove as abortive of good as did the treatment of alveolar abscess a few years ago, by pumping creosote into the fistula every day, and from the same cause.

Again, we find in many cases the accumulation of salivary tartar is in a measure self-limiting; we find but little more at the end of three months than we find at the end of one. That it is to any great extent the cause of pyorrhœa, or a tooth-loss, unless greatly neglected, I do not think. The fact so frequently noticed, now and in the past, that pyorrhœa occurs where no tartar is present, and that large neglected accumulations of tartar are present with no pyorrhœa, is sufficient evidence that as cause and effect they are not closely related. If its harmfulness was as great as some contend, the number of unhealthy mouths would be vastly increased. As before stated, I consider its hurtfulness is mainly in covering and protecting more potent agents, and practice and urge that every effort be made to keep the teeth as free from it as practicable. It is useless, however, to insist upon impossibilities. It is an open question in those cases where salivary tartar and receding gums are especially marked, whether even here we have an exhibition of cause and effect. We know that gum recession exists without unusual deposits of tartar. We also know that tartar deposits exist without gum recession. We still further know that this tartar is more prone to deposit in places where the secretions stagnate, and that the wasting of gum tissue, especially on the lingual aspect of the lower incisors, form a pocket furnishing conditions favorable to these deposits. Beyond this we do not know. The cause of these deposits, why marked in some mouths and entirely absent in others; why quickly deposited at times and at other times less so, I have never seen explained, nor yet do I recollect any suggested means at all plausible by which their formation may be prevented.

Fouchard, in 1728, following his predecessors, urged their frequent removal, and in this year of grace, 1896, we seem to have no better method, notwithstanding the progress which our science is supposed to have made during the intervening one hundred and sixty-eight years.

In the so-called sanguinary tartar we have another mystery, and here again we are puzzled to know whether it is the cause or result of the lesions usually associated with it; and here again we find our science has failed to make any material advance since the days of Hunter and Berdmore. Is this peculiar deposit the result of local or systemic causes? What determines its formation in some cases as a ring, to a greater or less extent encircling the neck of the tooth just beneath the gum margin, in others encroaching to a greater or less extent over the surface of the root, either as a continuous coating or in detached crystal-like bodies? Who can tell? Indeed, who can tell whether it precedes or follows that break of continuity, an invariable accompaniment of its presence, between the periosteum of the root and that of the alveolar socket, a break of continuity that is seldom, if ever, healed.

Between salivary and sanguinary tartar there is this very marked difference, the first forms over the gum tissue, seldom encroaching, unless there is a marked preëxisting lesion, between the tooth root and the gum; the latter is always found beneath the gum tissue, and between it and the root, in many cases under conditions that suggested it to have been the cause of the space it occupies.

They appear to be quite independent the one of the other; either may be found quite alone, or they may be so closely associated and blended that it is difficult to decide where the one ends and the other begins. Indeed, at times we are at a loss to decide whether the deposit is of salivary or sanguinary origin. So far as I know, we have no suggestion for its removal other than by mechanical means. To a slight extent various agents, so-called solvents, appear to assist in its removal, not, I think, because of any solvent action upon the tartar itself, but by breaking up its attachment to the root. I question very much whether any agent exercises over it, under the circumstances under which it must necessarily be used, any real solvent action. So far as prevention is concerned, I recall no suggestion promising practical value. Treatment recommended is, for the most part, local. First, the mechanical removal, so far as is possible, of the deposits, followed by astringents and antiseptics. All agree that constant

watchfulness and care is necessary to prevent a relapse. Of the two forms of tartar deposits, this is by far the most to be feared. It strikes at once a part vital to the continued usefulness of the tooth, and opens a path to deep-seated germ infection exceedingly difficult to combat. It is a very serious cause of tooth-loss, and one exceedingly difficult to control.—*The Dental Office and Laboratory.*

THE FIRST PERMANENT MOLAR.

By J. T. Martin, D.D.S., Muscatine, Iowa.

There is great difference of opinion as to the methods of dealing with the first permanent molar, from those who advise its universal extraction, almost regardless of conditions, to those who advise its almost equally universal retention, likewise regardless of conditions. Personally, I regard the loss of this tooth as a misfortune usually, just as the necessity for a filling is a calamity. It would be desirable to avoid the necessity for either, but I regard its loss as much less of a calamity if it occurs at an age which permits the second molar to move forward bodily and occupy the space.

Many cases are presented to our notice before, say, the twelfth year, when all reasonable indications are that the tooth cannot be retained for more than a few years. When the bicuspids are not in position I would usually advise the temporary filling of tooth to relieve pain and insure its use, with the understanding that upon the appearance in place of the bicuspids the molar be extracted.

In all cases, except a possible few where the extraction of the first molar for regulating purposes may be indicated, it seems to me best to save these teeth when there is a prospect of their remaining for a number of years with reasonable effort; but if they are to be lost before the twentieth to twenty-fifth year, their removal as soon after the bicuspids are in place as possible will result in the best masticating surface for the longest time obtainable under the circumstances.

If the second molars on lower jaw are in place before this tooth is extracted, the probability is that the space will remain or the second molars will tip forward, making a very faulty and undesirable articulation.

The upper molars act quite differently, and I have frequently seen cases where the first molar was extracted between the ages

of twelve and sixteen and the spaces entirely closed. It is impossible to state definite ages when it is wise to extract this tooth, but it is safe to say that the best results are likely to follow its removal after bicuspids are in place and before the second molar appears. If it is not deemed advisable to remove the tooth, use all reasonable means to retain it in place with full restoration of crown until adult life; it is better to have a space between bicuspids and molars, corresponding in width to first molar, than the evil effects of an articulating surface such as will probably follow the tipping forward of the second molars. The practice of filling the roots, and either removing or allowing process of decay to remove the crowns, has been more or less advised. Let me urge that one of two courses be pursued—either extract at once, or preserve the whole tooth in as nearly its original form as possible.—*Dental Digest.*

Sulphuric acid in the treatment of opening root-canals has proven itself to be a most valuable agent, and to Dr. Callahan are we indebted for its introduction. His method is to adjust the rubber-dam, dry out the cavity, remove contents, place a drop of 40 or 50 per cent. solution in the pulp chamber, take a discarded Donaldson broach, and with pumping motion enlarge the canal or canals, washing out frequently with a solution of bicarbonate of soda until the apex is reached. You can fill immediately. Should you have an obliterated canal, seal a drop of acid in the cavity for ten or twelve hours. When opened again and dried the canal can be easily located. Do not use the broach a second time.

To line rubber plates with aluminum, roll the aluminum to twenty-eight gauge, anneal the metal with a blow-pipe until it becomes white like unburnished silver. Thoroughly dry the cast, then with the two thumbs press the aluminum on the cast and burnish it to place, commencing in the center and working toward the edge. Prepare for adhesion of the rubber; use a chisel and carve the plate, making small hooks about one thirty-second of an inch long, in rows; then reverse the rows, turning the hooks in opposite directions until the surface of the plate is covered; anneal again and adjust the cast; wax teeth in place as usual and pack. The pressure under the press will make a perfect adaptation of the aluminum to the cast.—*Dominion Dental Journal.*

SOME CAUSES OF TOOTH-LOSS OTHER THAN DENTAL CARIES.

Normal causes of tooth-loss. Can we conceive of such a thing? Shall we admit that the loss of these important organs can possibly be a part of Nature's plan? Is the loss of the hair in bald-headed families, families of which there are many, whose members, generation after generation, become, as we term it, *prematurely bald,* normal or abnormal? There are in these cases, for the most part, no recognizable diseased condition to account for the early loss of the hair, nor yet, so far as I know, any suggestion that pathology plays any important part in accounting for its early or late change in color. We usually associate the snowy or silvery locks with advanced age. Is old age a disease? Is this accompaniment of it normal or abnormal? We may here bear in mind that age is development; in this connection years do not count. Many a man at fifty is as old, so far as development is concerned, so far as impaired vitality is concerned, so far as age is betokened by those physical changes comprehended by the term *infirmities of age,* as are others at eighty or ninety; all this, and the man is not sick. He has simply become old before his time.

While writing this, I am interrupted to examine a case that well illustrates this point. The patient has been in my care nearly thirty years. She came to me for her first dental work a Miss of a score of years, with as clean and well-kept a mouth as I have ever seen. Most of the work then done is still in good order, and during that long period I have seen her regularly at intervals of a few months. There is not now and never has been the slightest pathological expression. No inflammatory condition, no tartar or deposits other than those of the most innocent character; these have been promptly removed. The gum tissues have always been quite normal in character, and yet, there has been a gradual gum recession, especially at the posterior portions of either jaw, until the molar roots are exposed for nearly half their length. Since she has been in my care two teeth only have been lost, one extracted to relieve an irregularity, and another, a molar, the victim of caries that began on the denuded portion of the root, and in spite of repeated filling girdled the tooth, and so weakened it that it broke off. My experience teaches me that in this case the gum recession, accompanied by a like recession of the alveolar process, will continue until the teeth are no longer firmly held, and then will be set up a local irritation that will in

all probability hasten their loss. This local irritation may assume a pyorrheal condition. Now what can be done in a case like this? We have here a healthy mouth and a healthy patient. Except that before appreciating the importance of dental attention several molar teeth were lost, there has been no neglect of this mouth, either by dentist or patient. Except upon the portions of the roots denuded by gum recession, caries has been effectually arrested. Looking backward and looking forward, I see but little that therapeutics could or can do. The judicious use of antiseptics will no doubt prolong the comfortable usefulness of these teeth, but their loss from causes that to my mind are entirely non-pathological, unless some unlooked for change takes place, is only a question of time.

Let us study more closely this which I have termed normal gum recession. In early life, in a typical healthy mouth, the gum margins form well-rounded festoons, covering and extending beyond the junction of enamel and dentine; between the teeth, especially the molars and bicuspids, the gum tissue fully occupies the wedge-shaped interspace, leaving no vacancy for the accumulation of food, etc. As time goes on, shortly after the individual reaches full development, we note a change. The well-rounded, easy lines characteristic of youth are no longer seen. There is a contraction of tissue; the features assume a more rigid form, the muscles become more prominent, the child becomes a man. The gums participate in this change, they loose the well-rounded margins; they do not so well cover the enamel junction, and little by little there is developed a wedge-shaped space between the teeth. This is practically a recession of the gums. To a greater or less extent it always takes place as the individual advances from youth to age. It is as natural and normal as is the development of the maxillary sinus. This change continues in progress through life; it is only, however, when the change is rapid, or when it becomes excessive, that it attracts attention and its normality is challenged. In many cases it may be so slight as to pass unnoticed; not every octogenarian becomes gray-headed or bald.

In the same line we may refer to cases of absorption of the roots and filling up of the alveolar sockets, a process by which many teeth are expelled. The loss of antagonizing teeth frequently promotes this; it does not, however, always follow the loss of antagonizing teeth. At times it occurs without any apparent cause, and is only noticed when the stability of the teeth is compromised. A frequent accompaniment of

this is the sharp, needle-like points at the apex of the roots, seen only, of course, after extraction. In cases like this, to judge between the normal and the abnormal, to say exactly when the one ends and the other begins requires a close and careful study. To distinguish clearly and assign the effect to local or to systemic causes is another vexed question. So far, I have seen no study upon this subject that has favorably impressed me as being at all thorough or helpful. The time comes in nearly all these cases when a pathological condition supervenes. The pockets between the teeth favor the lodgment of food, etc., the condition of the gum margins favor deposits of various kinds; as a result, the gum margins become unduly susceptible to inflammatory conditions, or the loss of firmness of the teeth themselves eventually induces an unhealthy condition that must be met and properly treated.

We say "must be met and properly treated," but we are here seriously hampered. Can we cure these cases while the conditions which have caused the trouble still exist? Is it possible to undo that which has been done? Is it possible, by any available means, to prevent these changes from progressing? Frankly, I know of none.—*William H. Truman, D.D.S., The Dental Office and Laboratory.*

USE AND ABUSE OF BRIDGE-WORK.

By Wm. H. Steele, D.D.S., Forest City, Iowa.

Dr. Barrett expresses my idea in his article on "Bridge-work" in the *American System of Dentistry*, where he says: "Few teeth is the limit to which bridging can be satisfactorily carried." I think it would have been much better if Dr. Barrett had been more explicit and stated just how many teeth a bridge, or section of a bridge, could be expected to safely carry under favorable conditions, according to his experience and judgment. If he had done so it might have been the means of saving many a young bridge-worker from humiliating failures.

The force which the teeth have to resist when doing only their natural amount of work is the force capable of being exerted by the muscles of the lower jaw, in its different movements during the process of mastication. This force has never been accurately measured, and there is no probability that it will ever be satisfactorily, as there are too many conditions involved. This

force, of course, is greatest when the jaw is acting in its natural positions. Dr. Hans Block, of Germany, gives the minimum force at 300 pounds, the maximum at 500 pounds. The late Dr. J. J. R. Patrick gave it at 65 to 85 pounds. There is a wide field for guessing between these two estimates, but, for the purpose of illustration, we will take 210 pounds as the average. This divided by 14 gives 15 pounds as the pressure each tooth would have to sustain, providing the teeth are all perfect, and that they articulate so that each tooth sustains its full and equal share of the work, which is very seldom the case. Now let a bridge be placed in the mouth carrying the fourteen upper teeth, using the two cuspids and the right and left second molars as piers; what is the result? We are forcing these *four* teeth to do the work of *fourteen* and sustain the whole force of the lower jaw in every movement of mastication, equal to a pressure of $52\frac{1}{2}$ pounds on each tooth.

Again, take a bridge on one side of the mouth, carrying the two bicuspids and first molar, anchored to the second molar with a full cap, and to the cuspid with an open-face cap. In this case two teeth *apparently* have to do the work of five, but *really* do the work of ten, as most people who have a bridge of this kind use but one side of the mouth in mastication.

In case of the first bridge mentioned, biting on the section between the cuspid and molar has a tendency to motion, the cuspid acting as a fulcrum; in fact, any bridge with a central pier is liable to pivot on that pier, as it is almost impossible to set a bridge so that both terminal piers shall be equally rigid. The second bridge is open to the same objections; the whole force of the jaws often thrown on the middle of the bridge, causing the open-face cap to give, this being the weakest point, and throwing the whole strain on the posterior terminal anchorage.

It is an impossibility to place a bridge of any kind in the mouth without forcing the teeth to which it is anchored to do a large amount of unnatural work, and the ratio increases with every tooth added to the bridge; and, as a natural consequence, the permanence and usefulness of the bridge decreases in the same ratio.

Dr. Haskell defines the legitimate use of bridge-work: 1st. In supplying the loss of the lower bicuspids and molars where there is a posterior molar remaining. 2d. On the upper jaw bridges of not too many teeth are useful in the case of loss of posterior teeth, if there are firm anchorages.

In the loss of anterior teeth the bridge piers are subjected to

a lateral strain in biting hard substances that often makes them a failure. Great judgment must be used in constructing such dentures that there be *no occlusion* of the lower teeth.

Among the most objectionable features of bridge-work are the necessity of mutiliating good, healthy teeth to adjust bands, etc.; the unsightly appearance and impracticability of bands and open-face caps on the anterior teeth; the expense and difficulty of repairing; the tendency to drag out and destroy the teeth to which the piece is anchored; and last, but not least, the unhygienic and disease-breeding feature.

I have removed many bridges where the bridge, piers and all, could be removed with the fingers of one hand; and, indeed, one hand is all anyone would care to use for the operation, as the other would be needed to shut off the olfactory organs.—*Dental Digest.*

ODONTALGIA.

By Herman Prinz, St. Louis, Mo.

Odontalgia or toothache, although seeming to be a very simple affair for treatment by the dentist, often puzzles him considerably, as it will frequently withstand all efforts to control it. This is mostly true in cases of toothache caused by reflex actions. Local irritations are usually excluded in such forms, and, as no exact diagnosis can be made, the medicaments which we have at our command are empirically employed rather than used on rational principles. Diseases of the different organs, as eye, ear, brain, etc., constitutional affections, such as gout, anemia, malaria, syphilis, etc., may be accompanied by severe and persistent forms of pain in and about the teeth. On certain points on the face where the nerves leave the canals or come near the surface the pain will be most pronounced. Valliex calls them "painful points" and gives their location as follows: 1. Supra-orbital, over the supra-orbital foramen; 2. palpebral; 3. nasal, (internal and superior part of nose); 4. ocular; 5. infra-orbital (infra-orbital foramen); 6. malar; 7. superior dental; 8. superior labial; 9. palatine; 10. temporal; ; 11. temporo maxillary; 12. mental (mental foramen); 13. lingual, and 14. inferior labial. Rapid convulsive contractions, sudden shocks, which have given to this disease one of the names by which it is known—tic doloreux—lachrymation, photophobia, etc., may come and go with paroxymal frequency and intensity.

To gynæcologists it is a well-known fact that morbid conditions of the uterus may be accompanied by emesis and some severe form of odontalgia which results from hyperæmia of the pulp from a true form of reflex action. The pain is of a continual boring character and does not unfrequently end in the destruction of the pulps. The tooth itself is usually affected by that form of caries which we so often find in pregnancy. The treatment in such cases is accordingly more general, ethereal tincture of valerian, antipyretics and narcotics may give some relief. After the final stage of the case the toothache usually subsides. During the period of puberty frequently we find young girls suffering from toothache for which no cause can be found; in some cases it will last for a short period only, in others it will take the regular monthly type. The pain is usually spread about the superior maxilla bone or it is localized in a definite tooth, which appears to be perfectly sound to inspection. The same symptoms may occur in anemic and chlorotic women and girls, being partly due to neuralgia or relaxation of the blood-vessels. Plethora, chronic constipation, and other diseases, causing a check of the circulation, will often bring about conditions which may result in severe localized pain in the dental organs.

Treatment in such cases is more of a derivative character. Hot foot-baths and diaphoretic drugs may be administered. Attention should be paid to free movements of the intestinal canal. The late Dr. Rigby employed the following prescription with good results, which has our full confirmation:

℞. Sulph. magnesia..... ℥j.
Dil. sulphur. acid..... ʒss.
Purif. iron sulph..... gr. viij.
Peppermint water enough..... ℥iv.
Two tablespoonfuls to be taken in half a tumbler full of water.

In neuralgic pains of the trigeminal nerve, gelseminum (yellow jessamine) in some form may be looked upon as a panacea. J. Stocken gives us the following formula:

℞. Ammon. chloride..... ʒij.
Tinct. gelsemin..... ʒj.
Tinct. aconite..... mm. xx.
Aqua.....q. s. ℥vj.
Sig. One to two tablespoonfuls three times a day.

In such cases we may find not unfrequently the forehead covered with Herpes zoster. The followning ointment rubbed twice a day on the affected part will have good effects:

℞. Veratria ..... gr. ij.
Tinct. aconite..... mm. x.
Vaseline..... ℥ss.
Sig. For external use.

Now to come to an end, we will touch slightly on that—ache—toothache, faceache, headache—a conglomeration of aches, so closely connected with our lady patients of this *fin de siecle*. The dentist may be asked for some advice in such cases and will be greatly obliged by the poor sufferers if he can suggest some remedy which may help to relieve those dreadful pains. A very admirable remedy, which has often proven to give the best results in very desperate cases, thus:

℞. Caffeine citrate..... gr. vj.
Salipyrin.....
Potass. bromide.....āā gr. xxxvj.
Make in powders No. vj.
Sig. One powder to be taken three times a day. To make it more palatable to the patient, the powders may be compressed in tablets or dispensed in gelatine capsules.—*Ohio Dental Journal.*

HOW TO TREAT SENSITIVE DENTINE.

By Dr. A. H. Butterfield, Stamford, N. Y.

Carefully selected, well-shaped, small and sharp instruments, with a well-trained hand, are more than half the requirements of painless work. I regard a well-adapted instrument of small size of more importance than medication in sensitive dentine. Last winter I commenced using sulphuric acid, preparatory to filling roots, and observing its anæsthetic effect. I tried it on sensitive dentine with enough success to embolden me to further use it. Now, with few exceptions, I am able, with its use, to operate on the most sensitive teeth without discomfort to the patient.

At my chair I have a syringe nozzle connected to a handle; this is connected by a flexible pipe to a large cylinder (built like the air-chamber to an ordinary hot-air syringe), which is heated by a movable flame, so that the air can be heated from moderately warm to hot. Back of the cylinder, and in connection with it, is a chamber into which I put my medicament. This is controlled by a two-way cock; a lever of this cock is within easy reach of the chair, and by operating this lever I can allow the air to pass through the medicament, or not, as I choose. This, in turn, is connected, by a system of pipes, to the laboratory water motor, which operates an air-pump. By starting the water mo-

tion I can force a continuous stream of hot-air, medicated or not.

After adjusting the rubber-dam, or using some other means of preventing moisture from entering the cavity to be operated on, I turn on the air-blast and thoroughly dry the cavity, then I put in a drop of sulphuric acid. After waiting a moment I wipe out all surplus, and with the warm-air blast dry, after which, with small sharp burs (or excavators) I can excavate without discomfort. After excavating I usually place a portion of unused soda to neutralize any acid that may be present, and proceed to fill with whatever material my judgment dictates.

The medicament used in the chamber spoken of is composed as follows:

Carbolic acid,
Oil cloves,
Oil cajeput ..... āā ℥j
1, 2, 3, mixture..... ℥j

The use of which is to allay the discomfort sometimes caused by the blast of air on the dentine, and I find it very efficient.—*Dominion Dental Journal.*

BUILDING A PRACTICE.

I think I can say with the majority of them that I have pretty well come up from the bottom of the ladder; and I can remember in my early practice when I used to go out into three little country villages where I had a very respectable-sized practice established. I worked for reasonable prices, and did the best I could in every instance. I remember the last time that I went. I was gone for two weeks, and visited these three little villages. In that two weeks I did $500 worth of work, lacking a few dollars. It would have been sufficient to keep a man alive right in one of those little villages. I have seen the time that I could have lived in what I call affluence in that little village on $500 an entire year. It is true I had an assistant helping me to do some of the work, but it simply shows you the willingness of the people to pay a reasonable price for reasonable services. Afterward I quit going there. Others had heard of the great success I had had in these little places, and they flocked in like wild pigeons, one after the other. There was a dentist in the place almost every week, and sometimes there were two there at the same time. Instead of doing good, honest work for honest fees, they began to fool the people. They did poor work and tried to get big pay for it. They

pretended that certain things were what they were not. The result was that after a few months' trial they came there and could not make their expenses; could not pay the landlord. It absolutely ruined the practice that had been established. Now the people were not any different, the country had not changed any and the places had not changed any. It was simply a different class of dentists that came there, and the different methods they pursued, that ruined that business. I, or any other good man, could go out in those very same places again, and, in a few years, by doing good, honest, diligent work, reëstablish that practice.—*Dr. B. G. Maercklein, Dental Review.*

SECOND DENTITION.

A word about the second dentition. During this period the child needs careful and continuous attention. This is more especially true if the deciduous teeth have not received proper care, if there have been premature extractions or other abuse. At this period the child is old enough, with some watching, to carry out instructions. It is not generally known by the laity that it is not necessary for the child to loose any teeth before permanent ones are erupted. It is a frequent experience of the practitioner to have parents bring their children complaining of an aching tooth, only to discover that a permanent molar has been permitted to decay beyond repair. They do not know that the jaws have grown during these years and that the child is entitled to twelve more teeth in his permanent set than he had in his temporary one. The practice of extracting the first molars just when the second ones are erupting is to be condemned, except in extreme cases.—*Dr. W. E. Brant, Dental Digest.*

A QUICKLY EXTEMPORIZED TOOTH CROWN.

At a meeting of the Second District Dental Society, held in Brooklyn, April 8th, 1895, Dr. F. T. Van Woert presented the following novel method of quickly making a porcelain crown in an emergency case. A gentleman called at his office a short while ago, early in the evening, having just broken a central Logan crown. He was going to a wedding that same evening, and said that a new crown must be supplied. The dental depots were closed, and there was no way of obtaining another crown suitable

to the case at short notice. The pin was easily and quickly removed from the root, and an impression with modeling compound was taken, into which quick-setting plaster was poured. A dowel was selected, the projecting end of which was split for a short distance and the parts bent over at a right angle. A rubber tooth was then ground to position on the plaster model. With the tooth and dowel in place on the model, the bent-over ends of the dowel extending to just below the pins of the tooth, fusible metal was melted over the end of the root exposed and against the palatal surface of the tooth. While still fluid it was pressed with a piece of chamois skin so as to fill the space between the end of the root and the shoulder on the tooth above the pins. This was quickly cooled, removed from the model, trimmed and polished. The fit was accurate, the metal having gone absolutely to place, so that it could be finished with perfect edges, and the result was a very strong and beautiful crown. The whole operation was so quickly performed that twenty-five minutes after his first appearance at the office the gentleman departed with the new crown in position. Dr. Van Woert demonstrated this case at the meeting by making another crown on the same cast in ten minutes. *Cosmos.*

NON-COHESIVE GOLD.

It is a fact that most of the crown and gingival cavities of molars and bicuspids are filled with amalgam because of the trouble of adjusting the rubber-dam and danger of moisture, the time required in inserting a cohesive gold filling, to say nothing of the protests of the patient against a "mouthful of rubber," dam clamps, and the discomfort of the mouth held open for a long time, the many unpleasant incidents we all know so well.

It is for these reasons, as much as upon the grounds of expense, that both dentist and patient so often compromise upon amalgam, in a majority of the cases. But with non-cohesive gold most of these cavities may be *well* filled, and nearly as quickly as with amalgam, the trouble and discomfort of the rubber-dam be avoided, and the work done equally as well as with cohesive gold, and the dentist extensively using non-cohesive gold finds his income materially increased thereby. But above all these things is the decidedly superior quality of work it leads up to, and the higher appreciation of dentist and dentistry in the community.—*Dr. D. J. McMullen, Western Dental Journal.*

INCIDENTS OF OFFICE PRACTICE.

Dr. Frank Holland, Atlanta, cited a case in which a lady was under treatment by a prominent surgeon of Atlanta for nasal trouble subsequent to a severe attack of la grippe. She had been under his special treatment for six months without the slightest benefit. Visiting Dr. Holland for dental services, he, at once, found that the trouble was due to pus in the antrum from an abscessed central incisor, from traumatic injury, the patient having had a fall some time previous, striking the central incisor and causing the death of the pulp. It had remained in a dormant condition until aroused by the attack of la grippe, when an abscess developed which was unobserved and neglected under the nasal specialist's treatment.

Dr. John S. Thompson, Atlanta, cited a case with similar results, but due to an impacted superior third molar. In this case it had been found necessary to remove the second molar and cut out the third molar, which was imbedded in the process with the roots entangled with the roots of the second molar. Hemorrhage from the nostril followed the removal of the molars and the opening into the antrum was found. With proper treatment the man was soon restored to his field of duty, a healthy man once more.

Dr. Rosser, Atlanta, cited the case of a lady who had been under a physician's care for seven years. She visited his office for dental examination, being brought in supported by her husband on one side, her brother on the other, and accompanied by her daughters. He found her mouth in a dreadful condition, with only three sound teeth—seven broken off and with fistulous openings, pressure with the fingers at almost any point causing pus to exude from the gums. She was, of course, unable to masticate her food, but swallowed it as best she could, with these cesspools continually pouring their contents into her stomach along with the unmasticated food. She was dyspeptic, hysterical, emaciated, and had not known a night's rest for years. She had not been able to sit up all day for seven years, and all the time under a physician's care! In the removal of the useless *debris* of brokendown teeth it was found necessary to dissect out much necrosed alveolar process. The mouth was put in proper condition, and two months later, when a pleasantly-smiling, well-looking lady came in and addressed him by name, he was quite unable to recognize her until she recalled the circumstances of her previous visit. She said that she felt perfectly restored in health,

flesh, appetite and spirits, and had had occasion to call in the physician but once since she had received his dental services. She now enjoys her food, which she is able to masticate, and which is, apparently, well-digested and assimilated.—*Discussion, Western Dental Journal.*

LACTIC ACID TREATMENT IN PYORRHEA.

Dr. Younger described a number of cases successfully treated in the clinics of the Stomatological Club, of San Francisco. If this treatment fails, it will be because all deposits have not been removed, or because the pockets have not been first cleansed of blood, serum, etc. The lactic acid is best kept in a little test-tube, which can be held over the alcohol flame until liquefied and warmed. If not warm it will cause too much pain. One application, *once for all*, will be all that will be required if the deposits have been thoroughly removed and the pockets properly cleansed. He said: "You may laugh, but try it." Before applying the lactic acid the surrounding tissues should be protected by coating with glycerine and covered with cotton; then flood the pocket. The lining membrane will be exfoliated, contraction follows and the gum soon clings closely to the root again. Then wait a week. If the point of the syringe can be introduced it is proof that the deposits have not been thoroughly removed, or that the application was not sufficiently thorough to cause perfect exfoliation of the lining membrane, and the treatment must be repeated.—*Western Dental Journal.*

SOLUTIONS.—The calculation of percentage solutions is always based upon the number of grains of water in a fluid ounce. The exact weight is four hundred and fifty-five grains, and the simplest way is to multiply this number by the percentage desired. In other words, we take one grain of the drug for every hundred grains of water. Thus to obtain a four per cent. solution, we multiply four hundred and fifty-five grains by four per cent. which gives eighteen and two-tenths grains, or, roughly speaking, eighteen grains to the fluid ounce of water.—*Medical Brief.*

HINTS.

When extracting teeth and blood spots get on clothes the stains can be removed with $H_2 O_2$.—*W. H. Bailey, Dental Digest.*

* * *

In the use of the mallet I know of many teeth that have been ruined by overmalleting. It does not require a great deal of pressure to weld gold.—*Pacific Stomatological Gazette.*

* * *

I would like to see the children of Wisconsin compelled by law to go to some respectable dentist and have him examine the teeth, and then take a little card home showing just the state of those teeth.—*Dr. H. A. Palmer, Dental Review.*

* * *

Children are taught to comb their hair and wash their faces; but perhaps, in nine cases out of ten, they never brush their teeth. Why is it? It is simply due to the ignorance of the mass of the people.—*Dr. L. J. Stephen, Dental Review.*

* * *

When it becomes necessary to incise an alveolar abscess for the purpose of drainage, the incision should be made in all cases when it is practicable at the most dependent point of the pus sack; said opening should always be large, not small.—*A. H. Peck, M.D., D.D.S., Dental Review.*

* * *

When chemical abrasion is present its ravages may be arrested by cauterizing with nitrate of silver the parts affected. This treatment has also been employed to check the process of disintegration in shallow cavities, and it has been proved efficacious. However, it has not been in use long enough to gain much popularity.—*Dr. Charles A. Bland, Dental Headlight.*

* * *

For vulcanite work, making models and flasking, one-fourth marble dust, three-fourths plaster, is highly recommended. To remove plaster from vulcanite plates, after remaining in flask over night, immerse plate for a few minutes in hydrochloric acid.

To neutralize nitrate of silver when accidentally applied to soft tissue, use common table salt.

For sterilizing cavities before filling, wash with antiseptic pyrozone, which is also an excellent bleaching agent. Always use a rubber-dam and neutralize with ammonia or solution of bicarbonate of soda.—*Dominion Dental Journal.*

* * *

To line red rubber plate with black, coat the cast three or four times with black rubber cut in chloroform, allowing each to harden before the other is put on.

Architects tracing cloth will carry fine emery. When cut proper width, makes a good substitute for the polishing strips now in use.

To adjust the rubber-dam over cervical cavities, use wire instead of clamps. After adjusting rubber-dam in ordinary cases, hold it in place with sandarac varnish and spunk instead of thread.

Mount disks and stones for the engine with cement.

German silver, rolled to thirty-six gauge and three-sixteenths wide, makes good matrices.

A substitute for the rubber-dam punch, make the hole with a red hot needle or broach; it is less liable to tear.

To remove dirty wax, melt in water; when cool scrape dirt from under side, melt again in pure water, and add one teaspoonful of sulphuric acid when it comes to a boil.

To obtain absolute cleanliness of tooth before adjusting the rubber-dam or for crown- or bridge-work, wipe off the tooth with extracts of eucalyptus or chloroform.—*Dr. Wright, Ohio Dental Journal.*

* * *

Campho-phenique, confined under a temporary filling for a few days, is a valuable application for sensitive dentine.

To line red rubber plates with black, coat the cast three or four times with black rubber solution cut in chloroform, allowing each to harden before the other is put on.

For the protection of cement fillings, resin and wax in equal parts, melted on spatula and poured on the filling before it is wet, is superior to either wax or paraffin.

To renovate dirty wax: Melt in water; when cool scrape the dirt from the under side; melt again in pure water and add one tablespoonful of sulphuric acid when it comes to a boil.

Europhen and boracic acid in equal parts makes a valuable dressing in the treatment of pyorrhœa, alveolar abscess, necrosis, or for any suppurating surface. Either powder or mix with glycerine to form a paste.

A solution of hyposulphite of sodium in water will remove iodine spots from linen, cloth, skin, in fact, from everything, almost instantly. The fresher the spots the quicker the action of the hyposulphite. This may be a welcome item to some.—*J. C. Emmerling.*

Use zinc sulphate in the treatment of pyorrhœa, after thorough cleansing of pocket and roots. Warm beeswax in warm water and incorporate zinc sulphate to form a paste, with which pack the pockets and leave several days. As the pockets fill in with granulation from the bottom the plug is forced out.—*Dominion Dental Journal.*

* * *

I am often asked "What do you do with baby-teeth that have been too long retained?" Always take them out. This is the result of clinical observation. It is the rule of Nature that there are twenty teeth to be shed and replaced. If they remain in, contrary to God Almighty's will, pull them out. In forty-nine cases out of fifty the permanent teeth will erupt, and you don't want to sacrifice the forty-nine chances for the sake of that other one. Remove them at approximately the proper age for them to be removed by Nature. Not according to the old tables of eruption, however, for through the influence of our faulty systems of education and diet that time is being retarded. The teeth of American children do not erupt according to rule, but are coning later and later.—*Dr. J. Y. Crawford, Ohio Dental Journal.*

* * *

I find that one of the most potent causes of pyorrhœa comes from the mal-articulation. The patients are not meat-eaters. I tell them to eat plenty of meat and drink lots of water. I inject Dr. Payne's anæsthetic on both sides of the tooth and up to the apex. Then I use a lance and make an incision longitudinally to the apex and wash out with purifine, and then I can see what I am doing, and can scrape thoroughly. Then I take a lance and puncture the gum thoroughly to the apex, until it looks like the top of a pepper castor. In hospitals they do this to make bone deposit. When I asked a doctor at the hospital why this was done, he said that it brought a quantity of blood there, and

that brings tissue and deposit of bone. I find it so in the treatment of pyorrhœa. On the outside of gums I use a hæmostatic. When the bleeding is completely stopped I dry the gums carefully with bibulous paper and put on campho-phenique, then I dust on powdered europhen. It will stick there three or four days. I also put it on the neck of the tooth. I send patient away with an antiseptic tooth-wash.—*Dr. A. C. Hart, Stomatological Gazette.*

* * *

I look upon the enamel prism as a covering to the tooth, the same as I look upon a wooden-blocked pavement as a covering to a street. The ends of the prisms are exposed, just exactly as the fibre of the wood is exposed to the surface; and they will withstand the most wear and tear from that surface. If you take out a single block of wood in a street pavement, you will pretty soon have a large open space there where the blocks have all tumbled to pieces and gone to ruin. If you should approach the wood from the side instead of from the end, you would find it would wear out very easily. If that was not the case we could use planks instead of blocks on end. A similarity exists with the enamel prism. You will find it is very difficult to take a bur and cut into sound enamel from the side of the teeth; but you can take any good, sharp bur and cut away the enamel after you have once exposed the sides of the prism. Now, you must protect the sides of those prisms with a filling, if they have once become exposed, because it is there where they are weak and vulnerable. On the other hand, if the prisms run in a certain line and you cut them off—the same as I would cut across my fingers in this way —you will have very small, short, wedge-shaped prisms at the outer margin of the filling; and they would never hold, I do not care how carefully the filling was inserted. While, if you cut them away in the line of the cleavage, you will have the entire length of the prism, allowing it to be supported even by dentine below, and by placing the gold alongside of that you run no risk of cracking or splitting them off. The operator can easily, by studying the various diverging positions of the enamel on the various positions of the teeth, ascertain for himself about how much he ought to cut away; and, unless that is done, we will almost always have failure.—*Dr. B. G. Maercklein, in Dental Review.*

EDITORIAL.

THE GROWTH OF THE ITEMS.

With this number we end volume eighteen and fulfill the moral obligations to the subscribers, which we assumed with the acquisition of the property. As was explained in the September number, it was obviously necessary, as a matter of good faith, to continue the magazine on the old lines, and in the old form, until the completion of the current volume, that the many hundreds of dentists who bind their journals for a permanent place in their libraries, might have the opportunity to bind this volume also in uniform style.

With this number, however, the obligation to adhere to the old form of the magazine ceases, and with the January number we will inaugurate a new era in the history of ITEMS OF INTEREST, and, we believe, in dental journalism. But as we refrained in our first issue from making any outline of our prospective policy, so now we will not go into details as to our perfected plans for the future. We prefer that our January number should reach our subscribers, affording them a surprise, which we anticipate will be pleasurable. It is sufficient at this time to announce that the magazine hereafter will be printed in New York, and that with a competent force and with sufficient capital we are in the position to carry out our plans for advanced dental journalism.

It may not be inappropriate in this crisis to briefly allude to the unique history of ITEMS OF INTEREST. Eighteen years ago it was begun solely as an advertising medium, a small sheet of four pages, with a subscription price of 25 cents per year. This venture met with such success that the numbers of the second volume contained eight pages per issue, and the subscription price was doubled. With the third volume the number of pages was increased to twenty-four, and the subscription to $1.

Subsequently, the publication was purchased by the Wilmington Dental Manufacturing Company, and while in their possession, each number contained sixty-four pages of matter de-

voted to dental science, in addition to its advertising pages. Moreover the magazine grew in popular esteem, until at the time of its acquirement by the Consolidated Dental Manufacturing Company, its subscription lists had reached a point which made it the most widely read dental journal in the world.

Thus the growth of ITEMS OF INTEREST has been satisfactorily progressive during its past. But its growth since the last change in its ownership has been truly marvelous, for, within four months, nearly 2,000 new names have been enrolled as subscribers. This fact can only be fully appreciated when one is reminded that more than half of the dental journals in this country have less than 2,000 names as their total list of subscribers, whereas this number has been added to the list of the ITEMS OF INTEREST, when it had already exceeded all others.

It is fitting, therefore, in response to this generous and prompt support which the dentists have proffered to the new proprietors, that they should show their appreciation of the confidence imposed in some tangible manner. This will be done by improving the magazine, and it is with pleasure that we announce that all the contemplated changes, including the addition of sixteen pages per month to the scientific department, will be made without increase of the subscription price.

CORRESPONDENCE.

CAN A DENTIST PRESCRIBE FOR A PATIENT?

TO THE EDITOR.

In North Carolina the court recently considered the question whether or not a dentist is a physician. The case arose under a statute of that State prohibiting the sale of liquor on Sunday, unless prescribed by a physician.

A person went to a dentist complaining of an aching tooth, and insisted on having a prescription for a pint of whiskey, which the dentist finally gave. The patient said he wanted to hold a mouthful of the whiskey over the aching tooth.

The court held that a physician is one authorized to prescribe for and treat diseases, and a dentist one who performs manual or mechanical operations to preserve, cleanse, extract, insert or repair teeth. The court naively remarked that there are thirty-two teeth in a full set, each one of which might ache on Sunday, and if dentists came within the term physician, under the statute in question, toothache might become more alarmingly prevalent than snake bites.

G. R. STEIN, D.D.S.

TO THE EDITOR.

Dear Sir:—In your issue for September, under the head of "Original Communications," we note an article from Dr. J. Foster Flagg, of Philadelphia, Pa., severely criticising the discussion of an article read by Dr. Younger. Dr. Flagg states that the article in question was read by Dr. Younger before the "Academy of Stomatology of San Francisco," an institution that, so far as we know, does not exist.

The article in question was read during the closing hours of the meeting of the California State Dental Association, in 1895, a time at which proper discussion of any paper was practically impossible. The idea conveyed to our minds by Dr. Flagg's article is to the effect that he referred to the Stomatological Club, of San Francisco, and administered to them a most unfavorable and undeserved criticism.

The character and standing of the Club are sufficient to contradict any such criticism, in the case of any one who knows the

work the Club is doing, but, that the Club may not suffer from such unjust statements, we desire the publication of this communication as a correction of the article in your September issue.

WALTER F. LEWIS,
RUSSELL H. COOL,
FRANK L. PLATT,
Committee.

TO THE EDITOR.

Dear Doctor:—A sad piece of news reaches me from Helsingfors from my friend Prof. Ayrapaa, who says:

"It is my melancholy duty to inform you that our friend Wilhelm Olander died suddenly on the 18th October from apoplexy of the heart."

In the same letter Prof. Ayrapaa informs me that the Finnish Dentists' Society will interest itself in the future of the deceased comrade's widow and children.

Thus the ever sharp tooth of death severs the threads which bound till now a noble and industrious worker in the dental field to this life among us. With Dr. Wilhelm Olander disappears from active scenes of dental literature, societies and the practice a man full of enthusiasm and devotion. In that quaint, honest, busy and dignified city of Helsingfors, Dr. Olander was an interesting and very remarkable type of dental practitioner. Nothing new in the field of either science or practice of dentistry could easily escape his learned eye or well-trained hand. He fathered many a new appliance looking toward lessening the pain of the patient or the work of his fellow-dentists. If Dr. Olander got hold of a new cement or gold filling or anything which promised to stir the dental world, he quietly tried it himself; then, if there was something in that which appealed to his reason or conscience, he would agitate the matter among his colleagues, then in his society, till the new method or instrument, or whatever it might be, was fully tried and tested, and either incorporated into the daily practice of the majority of advanced dentists or discarded altogether.

As the Secretary of the society whose name is borne by their quarterly "Scandinaviska Tandläkareföreningens Tidskrift," Dr. Olander had rare opportunities for displaying his activity, exciting the curiosity and interest of his brother practitioners. In America it will hardly be intelligible if I state that the feeling among the eight or nine dental practitioners in Helsingfors—a city of only 62,000 inhabitants—is one of neighborly kindness

and respect. I found only one exception, but it related to a newcomer who had an unsavory reputation, and even in this case, the criticism was too mild to deserve the name. In many other respects it is a remarkable city. When I came there last February and glanced at the scenery bordering around the city and cutting through it, as it were, I could not help calling it "the frozen paradise." But when I learned the character of some of its inhabitants, including all the representatives of our craft, I maintained all along that this was easily one of the most cultured cities of its size in the world. And as to honesty, I stake my reputation on the assertion that Helsingfors is *the* most honest city, collectively or individually, in the world. The sights that I saw and the institutions that I visited, thanks to the kindness of Drs. Olander and Ayrapaa, filled me with a love for that city and a respect for its representative citizens, and the "common" folks too, that time and experience will probably never efface. The dental fraternity of the world may be proud of those modest workers at the dental chair who help to make Helsingfors a model city of the world. The profession ought to take notice of the demise of a faithful student and laborer who guarded his reputation by all honorable means. The dental profession of the United States will no doubt think kindly of one who died far away, but who came to study the art in Harvard University, and carried the name and fame of that great American institution to a distant land. And as the ITEMS OF INTEREST represents not only American dentistry, but embraces the interests of the dental profession the world over, it befits the journal to take special notice of a very genial, enthusiastic, literary and practical devotee of the dental science and art, and extend its broad sympathies first to his widow and children, and then to all friends who knew Dr. Wilhelm Olander, directly or indirectly, and wish peace and respect to the dear memory of the modest dead one.

For the ever sharp tooth of death will never be dulled so long as glorious Nature will surround man with its beauties, its inspiration, and its inevitable laws, by which there comes a time for every human being to add himself or herself to the "great majority" which rules the living world more and more.

Respectfully,

GEO. RANDORF.

ITEMS.

TO PREVENT RUST.

A very small amount of alkali is sufficient to keep metal from rusting, so that if steel, iron, nickel or copper instruments are dipped in five grammes alcohol containing one or two grammes of either borate, carbonate, bicarbonate or benzoate of soda, they will not tarnish.—*Lancet-Clinic.*

* * *

MECHANICAL TREATMENT.

I have found in my experience that those men who devote their time and energies to the mechanical preparation of cavities, to the condensation of gold, to the obliteration or removal of decayed matter in the pulp-chambers and pulp-canals of teeth, who mechanically fill them, are meeting with far greater success than those who trust to chemicals to do the work for them.—*C. L. Hungerford, Western Journal.*

* * *

METHOD OF OPENING PYROZONE TUBES.

I first place the tube in cold water and leave it there until the label will slip off; then carefully dry it and place it in a strong, clean, dry bottle (I keep for this purpose a citrate of magnesia bottle); then carefully close the same and shake until the tube breaks, when the solution can be poured off, leaving the broken tube glass in the bottle. Great care should always be used in removing the covering from the tube, as it is liable to explode in the hands.—*J. W. Drullard, Stomatological Gazette.*

* * *

GUTTA-PERCHA.

Professor Gray has recently adopted a very satisfactory method of using gutta-percha. After drying the cavity, he saturates it with common resin cut in chloroform and then presses in heated gutta-percha. It adheres to the wall like cement and does not pull away. He has found it very satisfactory in the mouths of his own children, where he has the opportunity of observing it closely.—*Dental Register.*

TO REDUCE PULP INFLAMMATION.

Place in the cavity, on a loose pledget of cotton, bicarbonate of soda, and saturate the surrounding parts with chloric ether. Leave in place from a half hour to a day, according to extent of inflammation. After this there is less liability of pain from the application of arsenic, and the application will be more effective.—*Dr. Williams, in International.*

* * *

PREPARATION OF CROWN CAVITIES.

My method is to take a small crown disk and cut away. I cut in the centre of the cavity, and, in the majority of cases, the patient is not disturbed; when I get into the dentine, or soft bone, I use my bur and remove the decomposed matter. The advantage I claim is that while using this disk I have smooth walls and perfect retainers, which you do not have with burs. Then I apply rubber-dam, dry cavity and fill. I find that such as I prepare that way last longer than those I treat otherwise, proving to me that it is the best way to prepare a crown cavity. It is more difficult to get a smooth wall with a bur than with a corrundum disk, using a flow of water to prevent heat.—*Pacific Stomatological Gazette.*

* * *

CATAPHORESIS.

This is the hobby of the hour. Look out, brother! Next spring's crop of dead teeth may be somewhat greater than last. Look well over your silhouettes, young man. Note carefully the sizes and shapes of the pulp chambers, the irregularities that exist in teeth having high cusps and that are deeply grooved.

We are pleased to report satisfactory progress in the treatment of devitalized teeth with the cataphoric apparatus. There is every reason to hope for as good results in forcing through the tooth antiseptic agents as anæsthetic agents, the same precautions having been taken. But when used to induce anæsthesia, be very careful to what depth you go, and make liberal use of a good, *nonconducting* cement after. For painless extirpation, drill almost to the pulp, use a saturated solution of cocaine, give plenty of time at as great a voltage as the patient can stand, and the result will be most gratifying. After the usual surgical procedure with electric current, force in your antiseptic and fill immediately.—*Editorial in Dental Headlight.*

A HINT.

By Dr. F. E. Judson, Antigo, Wis.

In preparing a tooth for the reception of a porcelain crown (Logan or Richmond), before excavating the natural crown, if you will take a piece of French rubber tubing, about one-eighth inch wide and a little smaller than the tooth to be crowned, carefully work it up on the neck of the tooth and as close to the gum as you can get without causing too much pain, allowing the patient to wear it for forty-eight hours, you can then face the root off under the gum line without laceration, hemorrhage or discomfort to your patient, which I consider quite an advantage in doing a nice piece of crown-work.

If natural crown is broken off, build down with cement sufficient to give room to adjust rubber tube.—*Ohio Dental Journal.*

* * *

A LIGHT ARTIFICIAL DENTURE.

By W. H. Todd, D.D.S., Columbus.

After you have carved and prepared the plaster model as the mouth would indicate, it should be painted with a thick shellac varnish, and covered where you want the plate, with Japanese lead (lead foil that comes in chests of tea). Be sure to have the foil burnished on the model, so that every inequality is shown. Now get the articulation as usual. If you wish to try in, take a piece of hard base plate and cut it short of the alveolar ridge so that when the teeth are set up it can be cut out, leaving the teeth standing. Mount the teeth and try in. If all right, cut out the hard base plate as close to the pins of the teeth as possible, replacing the base plate with a plate of Japanese lead, using two or three pieces, according to thickness of plate required, smoothing up next to the teeth, also the rim, with wax, just as you want the plate when finished. Then take another piece of Japanese lead and cover the entire palatine portion and rim of plate to the teeth, always burnishing each piece down close.

The last piece cover with shellac varnish so that it will adhere to the other part of the flask, then flask up. Warm before separating; take out the middle pieces of foil and wash out with hot water. Use a piece of chamois skin and a little mercury and proceed to polish the foil in both halves of the flask until it is as bright and smooth as glass, then you are ready to pack, using the toughest rubber you can buy.

When you take the plate out, you will have nothing to do but trim the edges and brush on the lathe, the result being the lightest, toughest, and thinnest plate made.—*Ohio Dental Journal.*

* * *

PROPER TREATMENT OF VULCANITE.

It should be borne in mind that vulcanite is affected by thermal changes more than any other solid body. Its rate of expansion in ordinary temperatures is somewhat over six times that of iron, about five times that of brass, and nearly four times that of zinc. This extraordinary expansion upon the application of heat will conversely manifest itself by contraction when the opposite thermal condition is applied. How and where will this extreme contraction be manifest in dental plates? If your case be of the stupidly contrived "gum sections," it can express itself only at one point, namely, by a contraction at the "heels," and a consequent raising of the body from contact with the model, most manifest at the posterior part, but really extending itself well anteriorly. How can this be demonstrated? There is but one way. Preserve your model after vulcanization, and restore the plate to it, when the extreme degree of contraction will be only too manifest. The base will have no manner of contact at its posterior part with the model upon which it was vulcanized. This contraction in case of the use of "gum sections" with properly ground joints must necessarily be at the rear, as the arch cannot be crushed. In the use of "plain teeth" the contraction is diffused throughout the entire plate, and, consequently, does not appear so prominently at the point mentioned.

The question may be asked, "How can the model be preserved?" This is perfectly easy. As soon as the temperature is reduced to the proper point, open the flask, remove the denture from the model, and at once place the model over a gentle heat for a time sufficient to expel all moisture.

Another result of excessive temperature in vulcanization, and the inevitable contraction in the molecular rearrangement which will follow, may manifest in cracked sections or "chipped" joints. —*Dr. C. A. Allen, Cosmos.*

* * *

TO CLEANSE BURS.

Remove *debris* with a hand-brush of fine wire bristles in conjunction with an antiseptic. A wheel-brush used upon the butt of the engine arm strews the offensive matter all about the operating chair and is a very objectionable practice.—*Western Journal.*

PLAIN TALKS....

TO Dentists.

No. 3.

THESE "Plain Talks" are our regular monthly letter to you. In them we try to discuss matters that will be of mutual interest.

We have been pushing the sales of our porcelain teeth so generally and persistently that some dentists have been led to think that this was our only business.

That idea is a mistake.

We make or sell everything that the dentist uses in his practice. There is no demand that you can make on us that we cannot supply. We are ready for the student the minute he enters college. We are ready to take him then and supply his every need in dental furniture, materials, instruments and appliances.

We have three pleas for business:

(1) We handle the best goods that are procurable with money and brains.

(2) We handle absolutely everything that a dentist needs, so that there is no need of buying a dollar's

worth any place else. We have the most complete assortments. We have not as many different moulds for teeth as we will have in six months. We haven't as many as we will have to-morrow. Every day adds to the number of moulds in use in our factory.

(3) We offer the dental profession the best goods in the world, at lower prices than he can get any place else.

A correspondent recently wrote to say that he had not bought our teeth because he was "a dentist, and the dentist's business is to try and cure diseased conditions of the teeth and mouth." There is every reason why we should do business with this man and with every man in a like position. We recognize that the dentist's principal mission is to save and restore natural teeth, and we are prepared to supply him with everything that he needs for this purpose.

Principal among needful things in this line are proper filling materials, and here we have practically no competition among dentists who require the very best.

We have lately purchased the entire plant, the stock, complete tools, secrets, formulæ and good-will of the late R. S. Williams. We are now making all of the various R. S. Williams' filling materials, employing the same people that Mr. Williams employed, using the same formulas, making exactly the same product.

When we have said that, there is little more to be said.

Every dentist knows that R. S. Williams' gold specialties are, and always have been, greatly superior to anything in their line. No dentist who has once used these materials will use anything else if he can help it.

Since the death of R. S. Williams, dentists who have demanded his gold and gold-foil have been met

with the statement that Mr. Williams was dead, and that his secrets had died with him.

Perhaps it was good business policy on the dealer's part to circulate this report. It saved argument, and he was, in many cases, enabled to sell an inferior product at a greater profit than he had ever been able to secure on Williams'.

Maybe that was good business policy, but we don't believe it.

Our policy is to tell the absolute, plain, unvarnished truth about our business and our products. We believe that a lie always comes home to roost. We believe that the dealers who have deceived dentists about R. S. Williams' gold will now lose not only that dentist's trade on gold, but on other things as well. The man who cannot be trusted to tell the truth about gold, can't be trusted to tell the truth about teeth, broaches, rubber or anything else. There is no reason to believe that he would be any more truthful on one subject than on another.

It is only human and natural, with the enormous business we are doing, that we should occasionally find a dentist who was not thoroughly satisfied with what we have done for him.

A prominent Chicago dentist wrote us the other day to complain about some goods that he had received, and to say that he thought we had misrepresented them.

We want our position on matters of this kind to be most clearly defined.

We do not want any member of the dental profession to take our words for the quality or desirability of any article that we sell. We want him to be wholly his own judge of our products. We want him to take them into his own office, where nothing but their intrinsic merit can help them. We want him to submit them to the severest tests. We want him to try them

in every reasonable way; to judge them by what they are—not what we say they are; not what our competitors say they are.

We want him to decide for himself whether or not he wants to keep the goods. We want it distinctly understood that no sale that we make is complete until our customer is satisfied. We don't want any man to keep a dollar's worth of our goods unless he thinks that he has got a bigger and better dollar's worth than he could get any place else.

Is there any way that we can make this any plainer?

Let us repeat.

Order from us what you like. Send the money with your order. When you get the goods, examine them, test them, try them—any way you like.

If you don't want to keep them, send them back and get your money—by telegraph, if you say so.

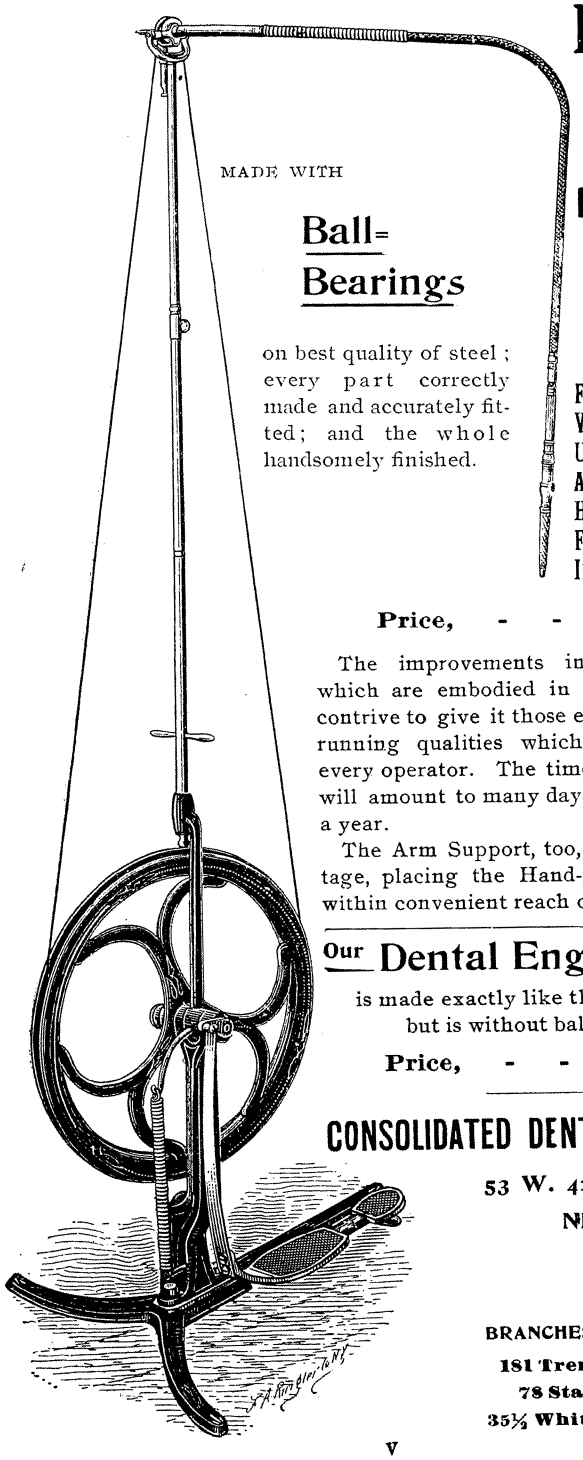
If that's fair, we want your business.

CONSOLIDATED DENTAL M'F'G CO.,

53 and 115 West 42d St.,

NEW YORK.

J. F. FRANTZ, *President.*



DENTAL ENGINE,

No. 1.

WITH - - -

Flexible Cable, Sheath, Arm Support, Flexible Wrist Joints, Universal Automatic Hand-piece, and Fourteen Instruments.

MADE WITH

Ball-Bearings

on best quality of steel; every part correctly made and accurately fitted; and the whole handsomely finished.

Price, - - $40.00.

The improvements in dental engines which are embodied in our No. 1 model contrive to give it those exceptionally easy-running qualities which commend it to every operator. The time and labor saved will amount to many days in the course of a year.

The Arm Support, too, is of great advantage, placing the Hand-piece at all times within convenient reach of the operator.

Our Dental Engine, No. 2,

is made exactly like the No. 1 model, but is without ball-bearings.

Price, - - $35.00.

CONSOLIDATED DENTAL M'F'G CO.,

53 W. 42d St.,
NEW YORK, N. Y.

BRANCHES:

181 Tremont St., Boston,
78 State St., Chicago,
35½ Whitehall St., Atlanta.

AFFIDAVIT.

STATE OF NEW YORK,
CITY AND COUNTY OF NEW YORK. } ss.

Mary A. Williams, being duly sworn, deposes and says that she is the widow of the late R. S. Williams, whose place of business was No. 115 West Forty-second street, New York.

That from the time of its first manufacture she, the deponent, personally manipulated the secret details employed in the manufacture of the Crystalloid Gold Foil sold by the late R. S. Williams.

That during said period no other party except the said R. S. Williams ever had knowledge of said secret details, but all of which have been imparted to the Consolidated Dental M'f'g Co., who have purchased the entire business and plant with all other formulas for the manufacture of gold specialties of the late R. S. Williams.

Sworn to before me this 9th day of November, 1896.

MARY A. WILLIAMS.

AUGUST L. MARTIN,
Notary Public,
New York County.

The above affidavit speaks for itself, and should satisfy the profession of the undoubted ability of the Consolidated Dental M'f'g Co. to maintain the high standard of the R. S. Williams Specialties.

With all the secret details pertaining to their manipulation imparted by the one who knows them thoroughly; with the employment by the Consolidated Dental M'f'g Co. of the same workmen to do this manipulation, can there be any reasonable question in the matter?

The **one difference** which should appeal to every member of the dental profession is our **change in price** of

R. S. Williams' STANDARD..... .....GOLD FOIL.

We are adopting the same policy with this Gold that we have adopted with reference to our Teeth, our Rubber-dam, and other specialties. We are selling direct to the dentist, and we are selling it at the very lowest price at which it can be handled.

CASH WITH ORDER.

Our price for the Standard Gold Foil is $3.50 per 1-8 ounce, instead of $4.00 as heretofore. A substantial reduction in price without impairment of quality.

Already the boycotting edict of the American Dental Trade Association is conspicuously manifest in the countermanding of orders for R. S. Williams' Gold, placed before the business came into possession of Consolidated Dental M'f'g Co., it, of course, being the intention of the dealers to compel their patrons to accept some substitute. Will the profession become a party to the compact? Will they help tighten the cords which are intended to bind them closer to the combination? We await the verdict. Remember our motto—Goods satisfactory or money back.

CONSOLIDATED DENTAL M'F'G CO.,

53 and 115 West Forty-second Street,
NEW YORK.

181 Tremont Street, BOSTON, MASS. **78 State Street,** CHICAGO, ILL. **35½ Whitehall Street,** ATLANTA, GA.

STANDARD GOLD CYLINDERS.

Style O. Open Centre. Loose Rolled.

Sizes: O. A. O. B. O. C. O. D. O. E. O. F.

The objects in making this style of cylinders are to combine in one as far as possible the most desirable qualities for general use which twenty-three years' experience in making cylinders suggests, and to make the price as low as is consistent with care in refining and manufacturing indicated by the name STANDARD.

The other styles of cylinders heretofore made will be kept in stock as usual, for they meet needs which cannot be filled by one style.

⅛ oz., $3.75.

STANDARD GOLD CYLINDERS.

Style A. Improved.

Style A Cylinders sent out after this date will be stamped "Improved," and will be found to be softer and more adaptable, while their other qualities will remain the same as heretofore.

⅛ oz., $4.00.

STANDARD GOLD

Means that it has, in every instance, been most carefully refined under the most careful supervision with chemically pure materials. This adds very considerably to the cost of manufacture, and does not show except in use under the instrument. Constant care is given to the manufacture, and no reasonable expense is spared.

STANDARD COHESIVE ELECTRIC GOLD.

For Electric Mallet, Hand Mallet and Hand Pluggers.

Thickness of folds, 30, 40, 60 ..... ⅛ oz., $4.00.

GOLD AND PLATINUM COMBINATION.

Shade 1, nearest Gold color; Shade 2, intermediate; Shade 3, nearest Platinum color.

Rolled, thickness, No. 60; Folds, thickness, No. 30, in each shade.

⅛ oz., $4.00.

Consolidated Dental M'f'g Co.,

115 West 42d Street, New York.

181 Tremont St., Boston, Mass. **78 State St., Chicago, Ill.** **35½ Whitehall St., Atlanta, Ga.**

R. S WILLIAMS' SPECIALTIES.

Metals for Crowns, Bridges, Plates for Artificial Teeth and Regulating.

Quality Strictly Standard.

	PER DWT.
24 Carat Gold Plate, Pure Gold	$1 20
22 " " " made from Pure Gold	1 15
20 " " " " " "	1 05
18 " " " " " "	95
Coin " "	1 15
20 Carat Gold Wire, Round and Half Round	1 15
18 " " " " "	1 05
Gold Clasp Plate, Gray Color, tough and springy	1 05
" Wire, Round and Half Round, tough and springy	1 15
Gold Solder, Number 22, for use on 22 Carat Plate	1 10
" " 20, " 20 "	1 00
" " 18, " 18 "	90
" " 16, } For use in cases where sufficient heat cannot be used to flow the higher qualities.	85
" " 14, }	75
" " 12, }	70
Gold-Faced Platinum	1 10

Gold-Faced Platinum, which is Pure Gold on one side and Pure Platinum on the other, equal parts, is usesul for Crown and Bands, because it can be soldered without danger of melting, gives the exact color of fine gold, and can be filled inside with amalgam, which will not act on the Platinum.

Platinum Plate, *soft*	Prices fluctuate.
" Wire, "	
Iridio-Platinum Plate, *hard*	
" Wire, Round and Square, *hard*	
Gold Ligature Wire	1 40

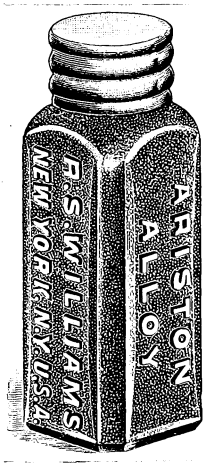
SPECIAL ALLOYS.

Non-Oxidizable Crown Gold

Is a new alloy which will not tarnish in annealing, and is richer in color than pure gold. It is nearly 24-Carats in fineness, but contains a little alloy, which makes it just enough stiffer than pure gold to retain its shape in working 1 20

Anderson's Crown Metal.

Has the gray color of clasp plate, which makes it less conspicuous than ordinary crown gold, is strong and stiff enough so it can be used very thin 1 05



ARISTON ALLOY.

This Alloy for Amalgam is designed to have the best average of desirable qualities, and to be thoroughly reliable.

1st. It mixes well either in the hand or mortar, forming a smooth plastic. *Thorough mixing is very important.*

2d. The working quality is excellent, because this alloy is not injured by using enough mercury to produce **complete amalgamation.** Equal parts by weight of filings and mercury give the best results. There is no need to use the Amalgam made of this Alloy so dry that it crumbles and is troublesome to use in cavities difficult of access; in fact, it spreads better under the instrument and unites better when there is just enough mercury to make a plastic, cohesive ball, but not so much mercury that it can be readily squeezed out by pressure between the thumb and fingers. When used too dry, the Amalgam is liable to bridge over like cohesive gold, leaving pit holes, which cause leakage.

3d. The Amalgam sets well, making a hard filling with strong edges.

4th. When properly worked, it will compare favorably with any amalgams as regards shrinkage.

5th. The color is **very white.** It has stood well in the mouth, and there is no reason to think that it will not hold color as well as any amalgam can do.

1 oz., $3.00; 2 ozs., $5.50; 4 ozs., $10.00.

CONSOLIDATED DENTAL M'F'G CO.,

53 and 115 W. Forty-Second Street,
NEW YORK.

181 Tremont Street, BOSTON, MASS.
78 State Street, CHICAGO, ILL.
35½ Whitehall Street, ATLANTA, GA.

R. S. WILLIAMS'

THE MOST PRACTICAL PLASTIC GOLD.

Crystalloid Gold.

A Few Suggestions in Regard to Its Use.

FIRST. In starting a filling, put in the cavity two thicknesses large enough to cover the whole bottom of the cavity and to wedge on the sides; then with a plugger having a medium-sized point, moderately fine serrations and without sharp edges, press the gold lightly toward the bottom, going all over the surface with this gentle pressure. In almost every case the filling can be started readily by this process; but if there should be any rocking, add another thickness and continue as above until these few pieces are fitted to the bottom of the cavity, and then use heavier pressure.

SECOND. Add pieces of single thickness, annealed to suit, and condense each piece fully before adding another piece. As the thickness of strips as packed in the boxes is equal to No. 150 or over, the reason for packing each thickness thoroughly is obvious.

THIRD. Continuing in this way, fill balance of cavity, taking usual care at the edges. It is believed that good edges can be made more easily with Crystalloid than with any other gold; but as this is the essential part of fillings which will preserve the tooth, all due care is advised. The idea is suggested that incompatibility of gold with tooth substance may be modified by the adaptability of the gold.

FOURTH. Crystallized Gold is the best

For Starting a Filling,
For the Middle of the Filling,
For the Surface of the Filling,
And for Contouring.

FIFTH. As Crystalloid Gold is different from other Golds, an operative who has not used it should read directions, lay aside prejudices, and observe carefully during the use of the first ⅛ ounce, as it is not fair to judge from using two or three small pieces.

SIXTH.—If you will test it fully you will always use it.

PRICE, ⅛ OUNCE, $4.50.

• • •

CONSOLIDATED DENTAL M'F'G CO.,

53 and 115 West 42d Street, New York, N. Y.

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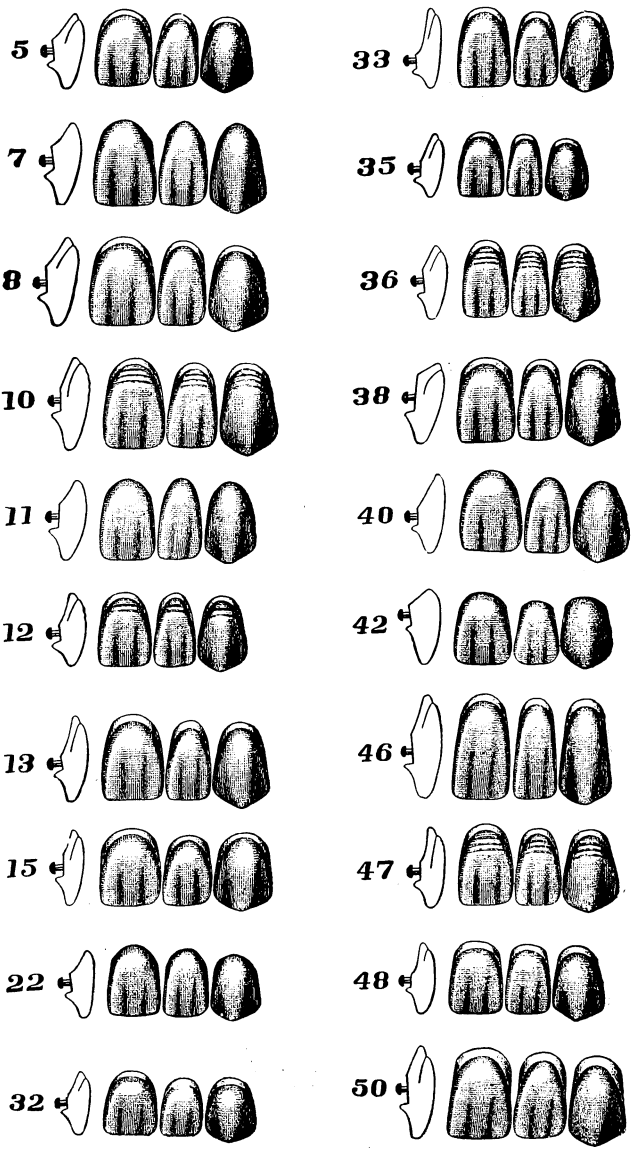
CONSOLIDATED DENTAL M'F'G CO.'S
Superior Plain Rubber Teeth,
IN SETS OF 14.



CONSOLIDATED DENTAL M'F'G CO.'S

Superior Plain Rubber Teeth,

IN SETS OF 14.

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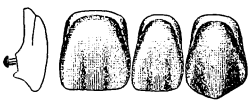
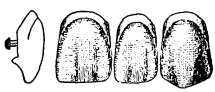
54 

55 

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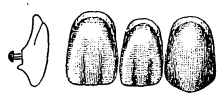
58 

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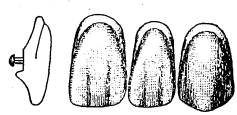
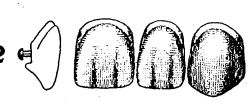
61 

62 

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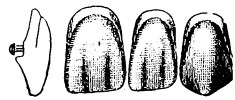
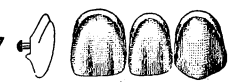
66 

67 

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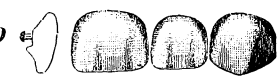
69 

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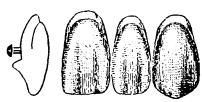
71 

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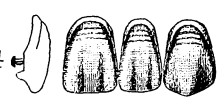
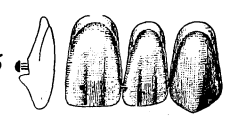
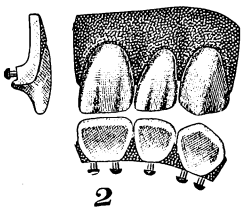
74 

75 

CONSOLIDATED DENTAL M'F'G CO.'S
Superior Gum Rubber Teeth,
IN SETS OF 14.



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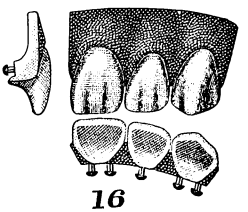

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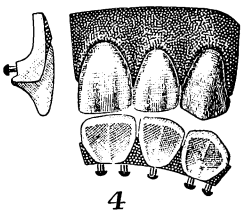

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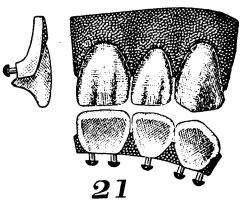

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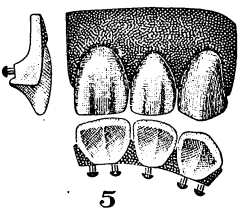

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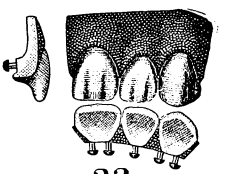

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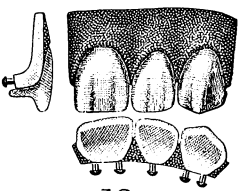

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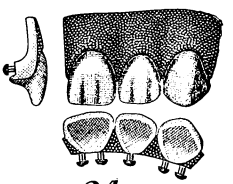

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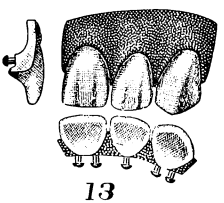

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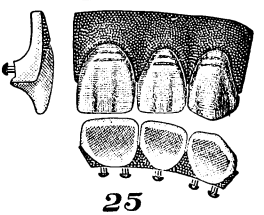

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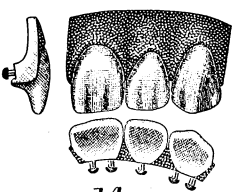

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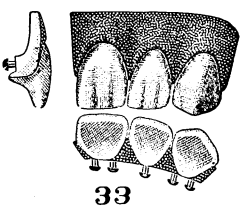

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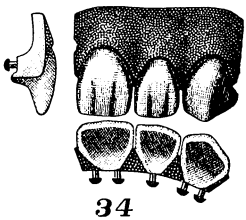
CONSOLIDATED DENTAL M'F'G CO.'S

Superior Gum Rubber Teeth,

IN SETS OF 14.



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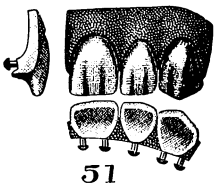

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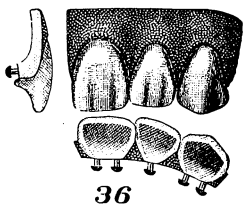

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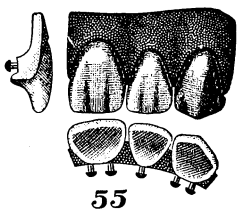

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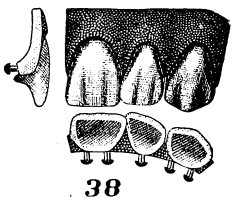

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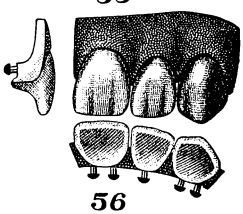

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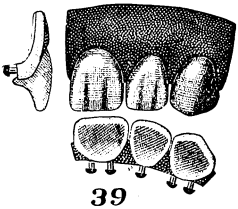

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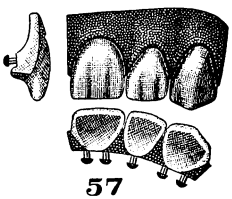

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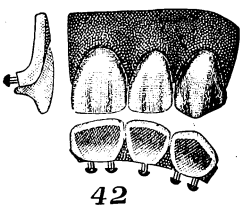

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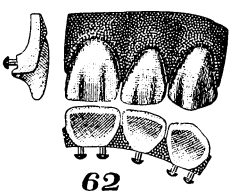

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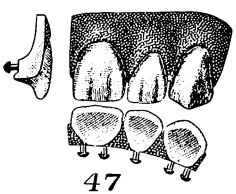

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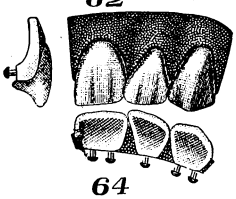

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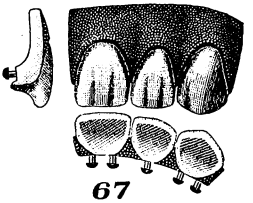
CONSOLIDATED DENTAL M'F'G CO.'S

Superior Gum Rubber Teeth,

IN SETS OF 14.



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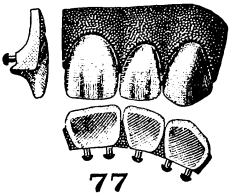

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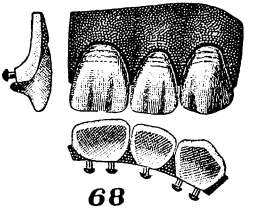

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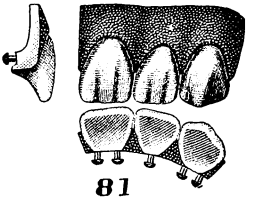

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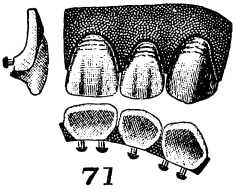

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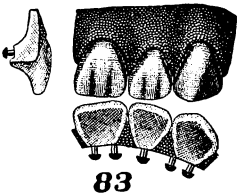

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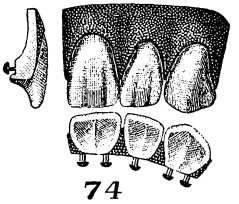

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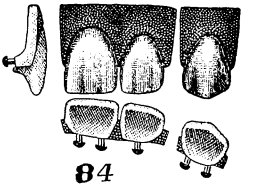

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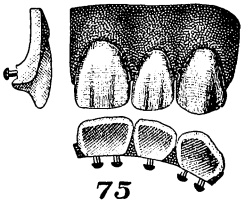

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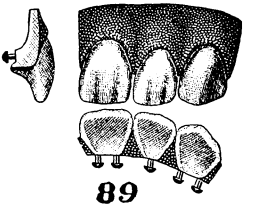

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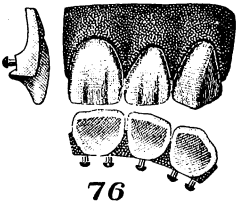

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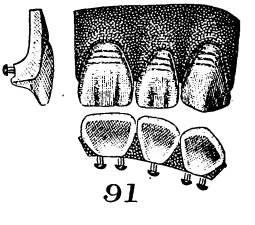

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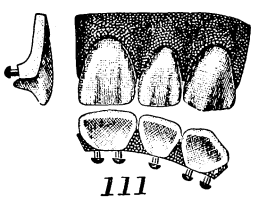
CONSOLIDATED DENTAL M'F'G CO.'S

Superior Gum Rubber Teeth,

IN SETS OF 14.



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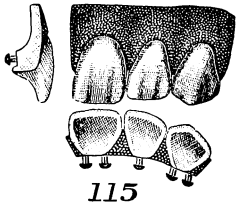

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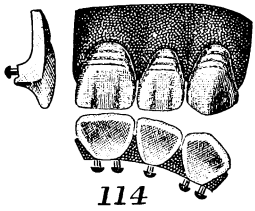

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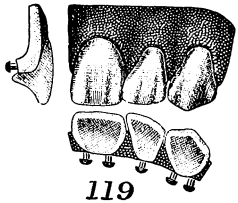

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PRICES OF PORCELAIN TEETH.

EITHER GUM OR PLAIN.

CASH WITH ORDER.

Single Set of 14 Teeth, $1.00.
25 Sets, $25.00, less 5 per cent.
50 " 50.00, " 10 "
100 " 100.00, " 12½ "

CONSOLIDATED DENTAL M'F'G CO.,

HOME OFFICE: { 53 W. 42d Street, New York.

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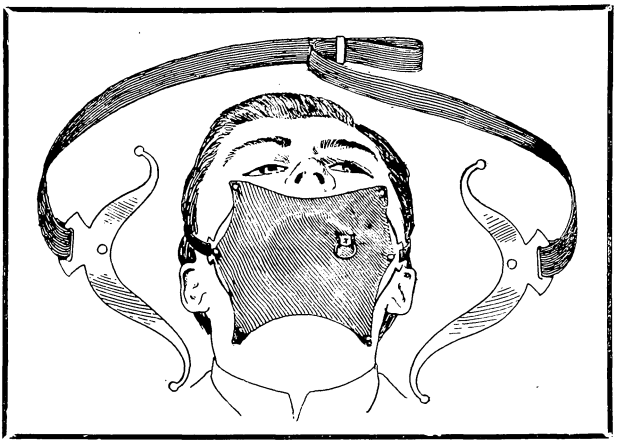
DR. C. A. DAVIS.....Pasadena, California.
ROBERTS & LATHROP.....259 Woodward Ave., Detroit, Michigan.
J. T. INGERSOLL.....364 Robert St., St. Paul, Minnesota.
LEE HUNT & CO.....465 Syndicate Arcade, Minneapolis, Minn.
ANDREW CUTTER.....111 West Sixth St., Cincinnati, O.
C. R. McDOWELL.....7 St. Helen St., Montreal, Quebec.
H. P. TEMPLE.....52 Adelaide St., W., Toronto, Ontario.



DR. HINKLEY'S

RUBBER-DAM HOLDER

[PATENTED.]

A Rubber-dam Holder That Holds.

THIS HOLDER was ESPECIALLY DESIGNED to assist the operator in exposing to light obscure and inaccessible cavities in posterior teeth, the efficacy of which will be seen by a glance at the accompanying cut. In using the Holder for anterior teeth, use clamp on bicuspid.

In adjusting the Holder, attach the upper ball of the face plate first, then the lower, and lastly take up the surplus rubber by attaching the center point, avoiding excess of pressure on the clamp by adjusting the head-band loosely.

THE ADVANTAGES OF THIS HOLDER OVER ALL OTHERS ARE:

1st. **It holds the dam firmly in the same position, independent of any change in the position of the head.**
2d. **It extends the cheeks and admits the light to obscure cavities in posterior teeth.**
3d. **It obviates the necessity of weights, and gives the operator the free use of both hands at all times.**
4th. **It costs no more than inferior makes, is more efficient, and requires only two-thirds of the amount of dam for its use.**
5th. **In short, it is a Perfect Rubber-dam Holder within itself, and truly merits the honor it aspires to win.**

PRICES:

German Silver, Nickel-plated,	$1.00
Solid Silver, Gold Plated,	3.50

CONSOLIDATED DENTAL M'F'G CO.,

53 West Forty-second St.,
NEW YORK.

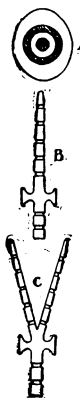
181 Tremont St., BOSTON, MASS.
78 State St., CHICAGO, ILL.
35½ Whitehall St., ATLANTA, GA.

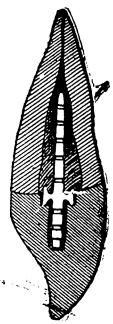
DR. C. A. DAVIS'

Shoulder Pin Crown.

Patented January 21st, 1896.

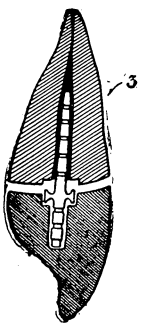
This crown is the best that has yet been placed before the profession. It is equally as good in the construction of bridge-work as it is in its use on single roots. Many advantages are gained by its use. The profession is being convinced that the slow plodding way of constructing bridge- and crown-work is a thing of the past.

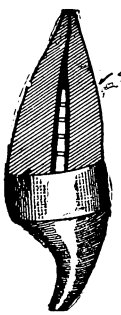




In order to show up more fully some of the evident advantages in its use, we place before you a number of engravings. Fig. B represents the Shoulder Pin, with its corrugations, in which the cement fastens securely. Fig. C is the pin, which is split for its use in bicuspids or molars. In Fig. A we have a representation of the end of a crown, showing the depressions that correspond to the shoulder on the pin. Fig. 3 shows root and crown ground to fit, ready to be cemented on to pin. The reaming out of the root is shown in Fig. 2.

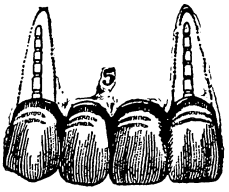
We now have the crown and root joined together, as is shown in Fig. 1. The joining is easily done by mixing any good strong cement to the consistency of a thick cream, and filling it into the root canal. Quickly insert the pin joined onto the crown. This should be crowded up securely and held until all surplus cement has escaped and the cement has partially set. The concave flange on pin gives great strength to both root and crown, as well as materially assisting in joining both more securely together. In case you deem it advisable to band these crowns onto the root, it is practically done as is illustrated in Fig. 4.

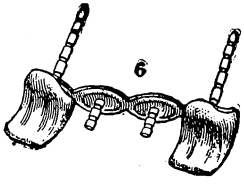




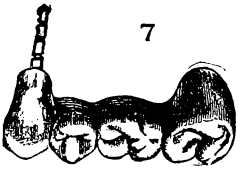
Davis' Crown.

The profession have not been slow in recognizing one of the great advantages of this crown, for bridge-work especially, over other crowns. In cases where crowns fracture and break off (which is not uncommon), it is an easy matter to cement on another tooth, and that, without removing the bridge from the mouth. This saves a great deal of time and pain for both patient and practitioner. This advantage alone brings it in great favor with the profession.





We represent, in Fig. 5, a bridge consisting of all porcelain crowns. Any one of these breaking off may be replaced on the bridge again, as will be seen in Fig. 6. This shows the retaining pins attached to the bridge ready for other crowns to be replaced. We also illustrate, Fig 7, a bridge of three porcelain crowns and one gold crown, showing that they may be practically used together in any case where it is thought advisable for strength or appearance.



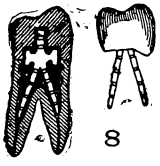

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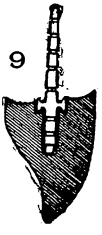
Fig. 10 also shows how the crowns may be replaced on a bridge where they have broken off. In Fig. 8 we show molar crown, with split pin. We can supply the crown, mounted with pins, as in Fig. 9, or the crowns and pins may be separate. In this way it makes it easier in fitting them to the natural root, as well as grinding them on the bridge when thus used. The only object we have in mounting the crowns with pins, ourselves, is that we may know that they are securely mounted. If you have any doubts of the practicability of these crowns, send to us for recommendations of those who have used them on both root and bridge-work. We keep on hand a variety of these crowns, in all sizes and shades as well as a great variety of the gold and aluminum crowns.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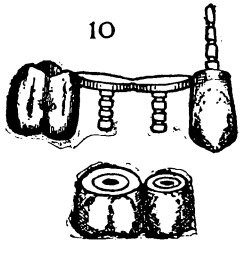
10

PRICES:

With pin.....$0.40
Without pin..... 35

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AND REAR
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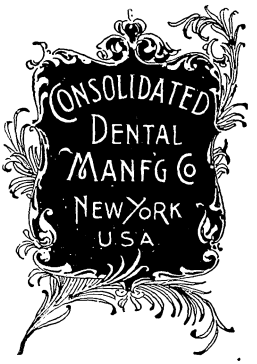

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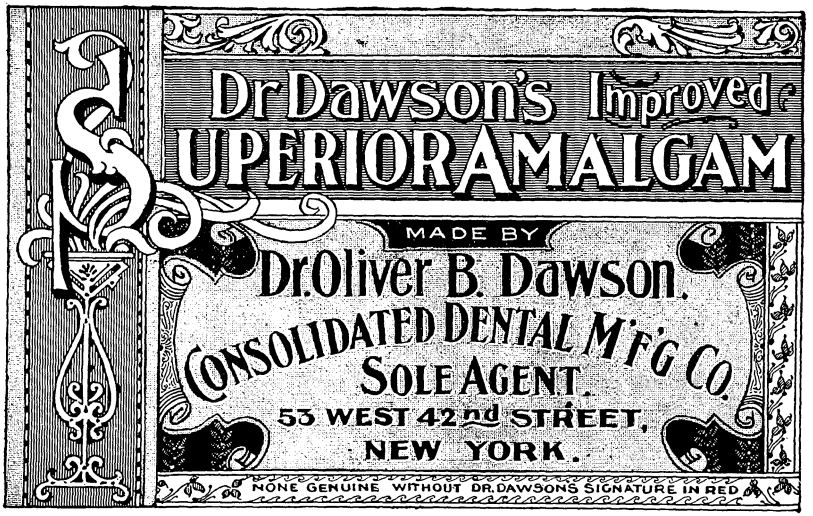
This Alloy is Dense, Malleable, and Does Not Discolor in the Mouth. Put up in oz. and 1-2 oz. Packages, in Filings or Shavings.

PRICE, Per Ounce, - - - - - $4.00.



This Amalgam IS SUPERIOR to Others of its Price. Put up in Envelopes or Glass Bottles.

PRICE:

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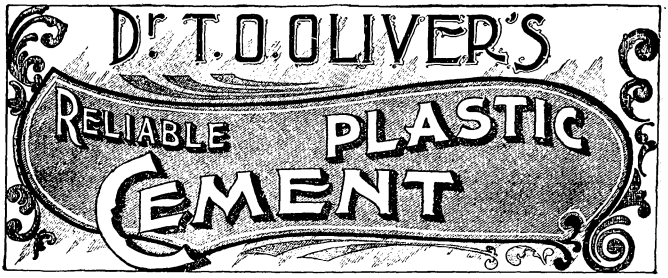

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Boxes contain two, three, and five bottles,

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These Wafers mark the final achievement of dental science in this direction. Remove as much of the decay from the cavity as possible and apply the Wafer, sealed in without undue pressure. In ninety-five per cent. of cases the pulp will be destroyed without pain or discomfort.

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It possesses antiseptic qualities which permanently resist germicidal action. It may be used separately or in connection with **OLIVER'S Ivory Enamel Tooth-Lining.** When the foramen is large, it is advisable to use the lining to seal the apex before introducing the root-filling.

Employed in either way it is a permanent fixture, suffering neither from expansion nor contraction.

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FOR THE MOUTH AND TEETH.

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LISTERINE is invaluable for the care and preservation of the teeth. It promptly destroys all odors emanating from diseased gums and teeth, and imparts to the mucous surfaces a sense of cleanliness and purification ; used after eating acid fruit, etc., it restores the alkaline condition of the mouth necessary for the welfare of the teeth, and employed systematically it will retard decay and tend to keep the teeth and gums in a healthy state. LISTERINE is valuable for the purification of artificial dentures and for the treatment of all soreness of the oral cavity resulting from their use. Patients wearing bridge work should constantly employ a LISTERINE wash of agreeable strength.

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81——**For Sale.**—$600 cash will buy $2,000 practice with office fixtures; no opposition; in University town of 2,500 inhabitants. Address, "Lunnion," care of Consolidated Dental M'f'g Co., 53 West 42d St., New York.

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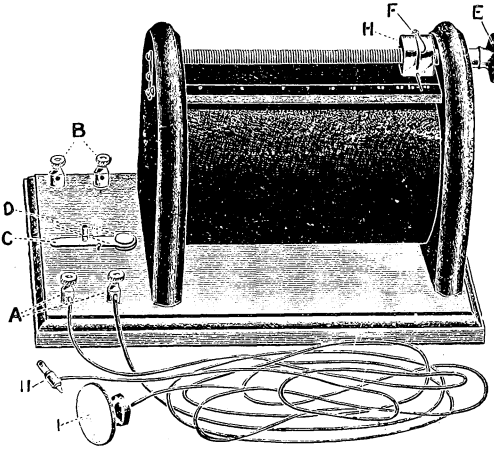

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ONE-SIXTH HORSE-POWER.

Will Run Both Lathe and Engine.

Your Own Head, Cable and Hand-piece Can be Used Without Change, if Desired.

PRICE, Complete (without Cable and Hand-piece), $75.00.

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Gold Seamless Contour Crowns.

With Solid Cusps.

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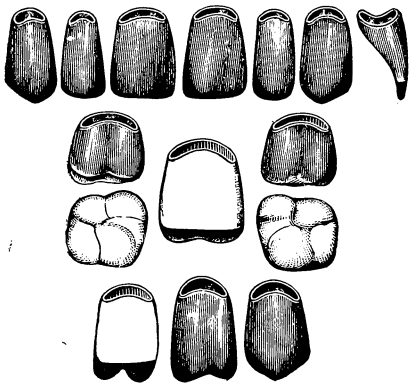
NO MORE WEARING THROUGH! NO MORE SOLDERING!

A CROWN COMPLETE AND READY TO SET!



WE have been manufacturing Crowns and Bridge-work for several years, and have been making progress in the work slowly indeed at first, but now our patrons are to be found in every State and Territory in the Union.

Crown-work.

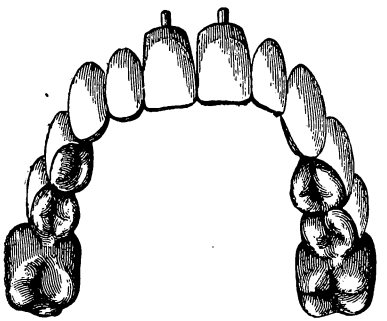
Our Centrals, Laterals and Cuspids are patterned closely after nature, and are easy to adjust, thereby making them the most perfect of front tooth crowns. They have also a solid cutting edge, and contain more gold than any crown in the market for the price.

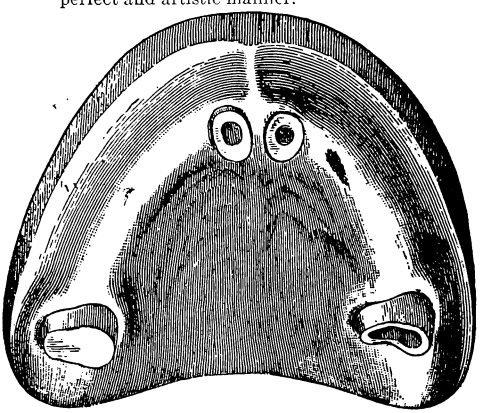
In ordering Crowns, send well-defined plaster model with tooth to be crowned marked, and be sure and **measure tooth with wire,** and we will make a perfect-fitting crown.

Bridge-work.

We call particular attention to our Bridge-work, which is made in the most perfect and artistic manner.

The Cusps on our Bridge-work are not made of a thin piece of gold, but are heavy and solid.





PRICE-LIST.

Molars, Centrals, Laterals and Cuspids	Former price, $3.00; now, $2.25		
Bicuspids	Former price. 2.50; now, 2,00		
Regular Bridge-work, with Gold Cusp, per tooth	3.00		
Regular Bridge-work, without Gold Cusp, per tooth	2.00		
Open-faced Crown	3.50		
Richmond Crown, Gold Tip	$4 00	Excelsior Anæsthetic, per oz. $1; 10 ozs.	6.00
Richmond Crown, without Tip	3.50	Excelsior Porcelain-faced Gold Crowns,	5.00
Excelsior Crown Cement, per package	1.00	Swedging Gold and Aluminum Plates	3.50

For extra long tooth an additional proportionate price is charged.

☞ **When the money does not accompany order, goods will be sent C. O. D.**

Send all orders to J. L. WELLER, 41-45 Elwood Building, ROCHESTER, N. Y.

Write for large circular with instructions.

ESTABLISHED 1865.

Strongest and Most Uniform Rubber Manufactured.

TRADE MARK
No. 3788.

Registered
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I CAN MAKE ANY COLOR OF RUBBER REQUIRED FOR THE TRADE.

Rubber Dam.....
Pink Rubber, in any Shade.....
No. 1 and No. 2 Rubber .....per lb., $2.25
Pure Black and Jet Black Rubber..... " 2.25
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In 10 lb. lots....per lb., $2.00 In 25 lb. lots....per lb., $1.90
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SAMSON AND MAROON RUBBER.....per lb., $2.75
Flexible or Palate Rubber..... " 2.75
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In 5 lb. lots....per lb., $2.50 In 10 lb. lots....per lb., $2.25
In 25 " .... " 2.00 In 50 " .... " 1.80

Mottled Rubber, the first Rubber I manufactured, can be made in all the above shades.

No. 1, No. 2, and Black Weighted Rubbers Mixed with Pure Metal .....per lb., $4.00

White Rubber.

These rubbers being made from carefully selected Para Gum and Manufactured by Improved Processes, I can guarantee them to give entire satisfaction to the users, and retain a high polish.

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A PAIN RELIEVER IN DENTISTRY.

In the many conditions with which the dentist is daily brought in contact, nothing is more important than pain; and nothing more to the credit of the dentist, or more satisfactory to the patient, than the relief of pain.

In the pain produced by an exposed pulp, an abscessed root, pericementitis or pyorrhœa alveolaris and in neuralgia of the trigeminus, nothing is more potent than a ten grain dose of antikamnia, or preferably two five grain antikamnia tablets as indicated. If the neuralgia is of malarial origin or if the patient is of a rheumatoid diathesis, nothing will be so satisfactory and efficacious.

Many cases of odontalgia are of nervous origin; particularly is this so in persons of a neurotic type. Many pregnant women have odontalgia, whose origin is hysteria. Every dental practitioner has seen such cases. A full dose of antikamnia will give grateful relief. If some brother dentist while treating a diseased tooth leaves a broach broken off in the root canal (and this sometimes happens), and the patient comes to you for treatment, do not expect antikamnia to cure the trouble—it will relieve the pain while you are treating the condition, but it will not remove the cause.

Reflex neuroses are seen more often than otherwise in patients of a neuropathic type. These cases are frequently met with by observing dentists. Neuralgia from carious teeth affects sometimes the eye ball, supra-orbital nerve, the occipital portion of the head and in some cases the cervical vertebræ are involved; aural troubles are not infrequent. Of the latter trouble, how could it well be otherwise when there is such close connection between the teeth and the auditory apparatus by means of the fifth cranial nerve; besides this, the dental nerves are connected with the ear by other anastomoses, as well as through the Gasserian ganglion. The tensor tympani, tensor palati and tympanic plexus, receive fibers from the otic ganglion and also branches from the sympathetic.

Now is it peculiar, that changes in tissue or function of the nerve at the dental distribution should produce pain in the regions supplied by other filaments of the same nerves in their terminals? Frequently the excavation of dental caries will produce neuralgia in the ear and elsewhere. Painful ulcer of the auditory canal is sometimes dependent on caries of an upper molar. It is not claimed that antikamnia will cure this condition, but it is meant that it will relieve the pain while the tooth is being properly treated or extracted, as the condition demands.

In pulpitis without exposure, where the patient is too nervous to allow you to expose the pulp in order to apply the devitalizing dressing, pain is apt to follow. In just such cases antikamnia is the remedy and will not be found wanting. Frequently the mere filling of a cavity, the setting of a Logan crown or a bridge, will produce nervous irritation, which can be allayed admirably by this remedy.

Pain in the teeth may be produced by caries, exposed pulp, dead pulp, inflammation of the peridental membrane, etc., there is not a more potent factor in producing trigeminal neuralgia than phagedenic pericementitis.

Dental irritation from whatever cause, reflected to another branch of the trigeminus, however remote its anatomical distribution may be, is often apt to escape the notice of both the dentist and physician. Usually, cases of supra-orbital neuralgia, pain in the auditory canal, etc., are first seen by the physician, and is not relieved by treatment because the cause is not recognized. It is, therefore, imperative in the physician, that he be on the lookout for such conditions and send his patient to the dental surgeon, who should, while removing the cause, give his patient antikamnia to banish the pain. It contracts the arteriolæ and thus relieves congestion.

Sometimes after extracting, the septum and process are denuded of gum tissue. When exposed to the air, great pain supervenes for several days. This condition is markedly benefited by the administration of antikamnia.

Many instances might be cited where the use of this remedy is indicated but the well-informed dentist only needs to have his attention drawn to the remedy and his knowledge will make the needed application.

Antikamnia Tablets are never without monogram and should be crushed when very prompt effect is desired, and patients should be so instructed.

Fac-Simile

5-gr. Tablet.

Antikamnia

Relieves Pain with Safety, Certainty and Celerity.

Send your Professional Card for Brochure and Samples to **THE ANTIKAMNIA CHEMICAL CO.,** ST. LOUIS, MO., U. S. A.

Geer's Phenol Dentifrice,

Or CARBOLIZED TOOTH POWDER.

Facts Are Like High Stone Walls---Hard to Get Over.

This Powder has been before the Profession since 1870, and stands to-day unrivalled as a Tooth Preservative. We have purchased the entire machinery, formulas, etc., used in its manufacture, from Dr. S. L. GEER, Norwich, Conn., and are now prepared to supply the Profession in any quantity.

We put it up "as of old," in 1, ½ and ¼ pound cans.

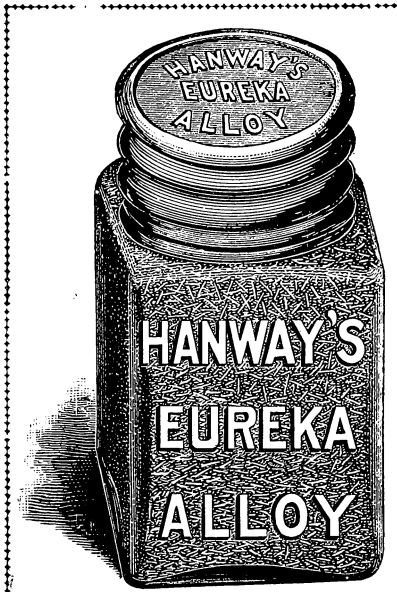
PRICES.

Per lb	$0.80
10 lbs. or upwards, per lb	.70
2 oz. bottles, per dozen	1.75
In gross lots	18.00

KNAPP & MORIARTY,

161 Tremont Street, - Boston, Mass.

FOR SALE BY **CONSOLIDATED DENTAL M'F'G CO.**



Hanway's . . Eureka . . . . Alloy

The proof is conclusive that it will make a filling acceptable in appearance, and will remain so ✱ There is no more discoloration to this Alloy than there is to gold ✱ ✱ What some term discoloration in gold is merely a dark deposit which forms on the surface; a little friction, and it is immediately removed ✱ The same with this Alloy . . .

The material itself does not discolor

and there is no perceptible shrinkage or change ✱ In all respects as reliable as gold, it makes a very sightly filling, being more in harmony with color of tooth than any other metal filling.

It contains all the essential elements for good color and edge strength . . .

✱ ✱

PRICES:

1 oz.	= =	*$2.50*
5 ozs.	= =	*10.00*
10 "	= =	*19.00*

Manufactured ...by...

H. D. HANWAY,

10 and 12 E. 23d St.

NEW YORK

Use chemically pure mercury in as small quantity as will make a stiff plastic filling, squeezing out all surplus mercury with hard pressure between thumb and finger ✱ Have cavity dry ✱ No subsequent polish is necessary, as the pearly white surface is not conspicuous in contrast with the tooth filled with this Alloy . . .

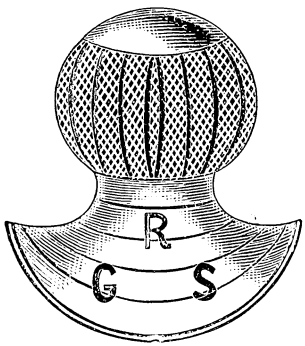
Rufus G. Stanbrough Co.,

203 West Fifty-second Street,

NEW YORK.

Manufacturers of

The Automatic Hand-piece,
The Safety Angle Attachment,
Engine Burs and Equipments,
Long-handled and Cone-socket Instruments.



Hereafter all goods of our manufacture, that will permit, will bear the above design, which we have adopted for our **Trade Mark.** All others will be stamped as heretofore, R. G. S. Co., and are sold under guarantee.

See November ITEMS OF INTEREST.

Respectfully,
RUFUS G. STANBROUGH CO.

DENTISTS ALL OVER THE WORLD are using them to their **GREATEST SATISFACTION.**

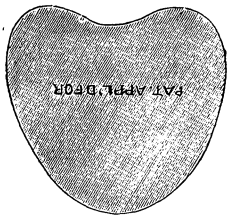


FIG. 1—Showing Spyer's Adhesive Plate for upper denture.

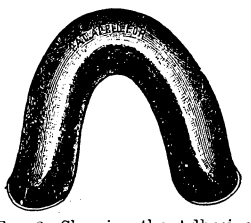


FIG. 2—Showing the Adhesive Plate for lower denture.

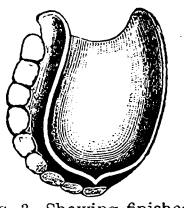


FIG. 3—Showing finished plates.

SPYER'S ADHESIVE PLATE.

"Trade-Mark Registered in the United States Patent Office."

French Patent, No. 247,754, May 28th, 1895. Patented in Germany. No. 84,120.

English Patent, No. 10,288, May 24th, 1895. U. S. Patent, No. 554,740, February 18th, 1896.

FOR UPPER AND LOWER DENTURES. AIR-CHAMBER NOT NECESSARY.

It causes the denture to **adhere firmly in any mouth—HARD or SOFT, DEEP or FLAT.**

Imparts **a soothing sensation to the gums and mucous membrane,** and prevents the **irritation that arises from the hard rubber** pressing upon the gums and roof of the mouth. Because of the greater firmness and adhesion of the plate in the mouth the ingress of the food between the plate and the gums is avoided, as well as any displacement of the plate in the process of mastication, which can thereby be performed with ease and comfort.

NO PLATE SHOULD BE MADE WITHOUT ONE.

UNSOLICITED TESTIMONIALS.

Many unsolicited testimonials received, of which the following are examples:

"I had a case of spongy gums that one-half dozen upper plates had been made for, and the patient could do nothing with them at all. Yesterday I used one of your Adhesive Plates, and I am charmed with the result."—F. H. SMITH, D.D.S., Water Valley, President Mississippi Valley Association.

"Made a plate with the use of your Adhesive Plates, and it is a perfect success The lady had been wearing plates before which were constantly loose."—WALTON TRAUMBAUER, D.D.S., Coopersburg, Pa.

"Enclosed find check for $1.00, for which send me by return mail one box of your Adhesive Plates. Used them in mouth that would not hold an ordinary rubber plate at all. Now, with your Adhesive Plate, patient wears teeth with comfort."—O. E. MICKEL, Haverhill, Mass.

"I have used your Adhesive Plates for the past six months with much satisfaction, both to my patients and myself. Please send me for enclosed two dollars two boxes, one upper and one lower, and oblige."

Yours truly,
H. SNYDER, Middleburgh, N. Y.

"I have used your Adhesive Plates, and find them very satisfactory. Enclosed find $1 00, for which please send me one box of your Adhesive Plates, No. 1."

Yours truly,
DR. C. C. RICHARDSON, cor. 87th Street and Madison Avenue, New York City.

DENTISTS ALL OVER THE WORLD ARE USING THEM.

$1.00 A BOX, EACH BOX CONTAINING SIX.

Put up as follows: Box No. 1, containing 3 Upper and 3 Lower; No. 2, containing 6 Upper; No. 3, containing 6 Lower.

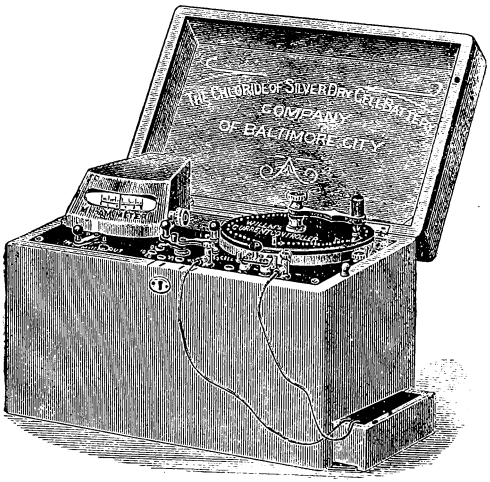
Can be had at all Dental Depots, and of the Manufacturers.

OFFICES AND FACTORY:
316 WEST 31ST STREET.

J. & L. B. SPYER,
NEW YORK CITY.

YOU ARE LOSING TIME

and patients, too, if you do not employ the latest and best apparatus in your office. The public wants



PAINLESS DENTISTRY

and in order to obtain best results it is absolutely necessary for you to add to your armamentarium a CATAPHORESIS Outfit--the latest and most wonderfully efficient apparatus for the anæsthetization of dentinal fibril. In this field the

WILLMS INTERCHANGEABLE DRY CELL BATTERIES are UNEQUALLED.

"So simple, my colored boy works the controller for me," writes a prominent Dentist.

Our new Practical Treatise "CATAPHORESIS ILLUSTRATED," will be mailed you on request.

HEED AND FALL IN LINE

The Chloride of Silver Dry Cell Battery Co.,

Dental Dep't. BALTIMORE, MD., U. S. A.

MUNSON, TOLEDO.

- - - - Dr. Kotts'

Continuous Blast

HOT AIR Syringe,

Unequaled for Efficiency and Convenience.

$5.00.

DR. KOTTS' PREPARATION. Potassium, Sodium and Bichloride of Mercury. Every First-class Dentist should have it, per tube $1.25.

EXCELSIOR RUBBER — ORANGE, RED, MAROON OR NUBIAN BLACK.

For Base Plate.

Per lb., $2.00 ; 5 lbs., $9.00 ; 10 lbs., $17.00.

Cash With Order.

BEST RUBBER IN USE. TRY IT.

A A ROYAL TEETH,

$1.00 per set of 14s.

CONSOLIDATED TEETH, $1.00.

ROYAL ALLOY, — WHITE, HARD AND DURABLE.

Per ounce, $2.00 ; 5 ounces, $8.00.

ALLOYS,

King's Formula,	$2.00 per ounce ;	5 ounces, $8.00.
Hardeman's Formula,	2.00 per ounce ;	5 ounces, 8.00.
Townsend's Formula,	1.25 per ounce ;	5 ounces, 6.00.

DENTAL WAX — PINK OR YELLOW.

For Base Plate.

Per pound, 80 cents, express, or $1.00, prepaid.

MODELING COMPOUND,

75 cents per pound.

THERMOMETER and SCALE

For Vulcanizer.

60 cents each, prepaid. Absorbent cotton, $1.00 per lb.
Engine cables, $1.00. Wrist Spring for Engine, 3 for 25c.

KLEINERT'S DAM,

Per box, $1.50, prepaid.

EXCELSIOR RUBBER-DAM,

$1.00 per roll, prepaid.

ALL GOODS CASH.

Write for particulars of Co-operative Trade Credit Plan,

C. W. MUNSON, Toledo, O.

E. J. McCORMICK'S

Dental Rubbers

Brands:

Gladiator,
Imperial Standard,
Anaconda.

These . . .

Superior Rubbers

are the best adapted in the world for dental purposes, and are well known for their great strength, exceptional elasticity and beautiful finish; also, for the ease with which they are packed.

Pink Rubber.

(*Genuine American Manufacture.*)

I am positively the first and only manufacturer of Pink Dental Rubber in America, and guarantee it superior in color, strength and finish to any of the foreign makes.

Imperial Rubber Works,

E. J. McCORMICK, Prop.,

26 WEST BROADWAY

(Formerly known as 8 COLLEGE PLACE),

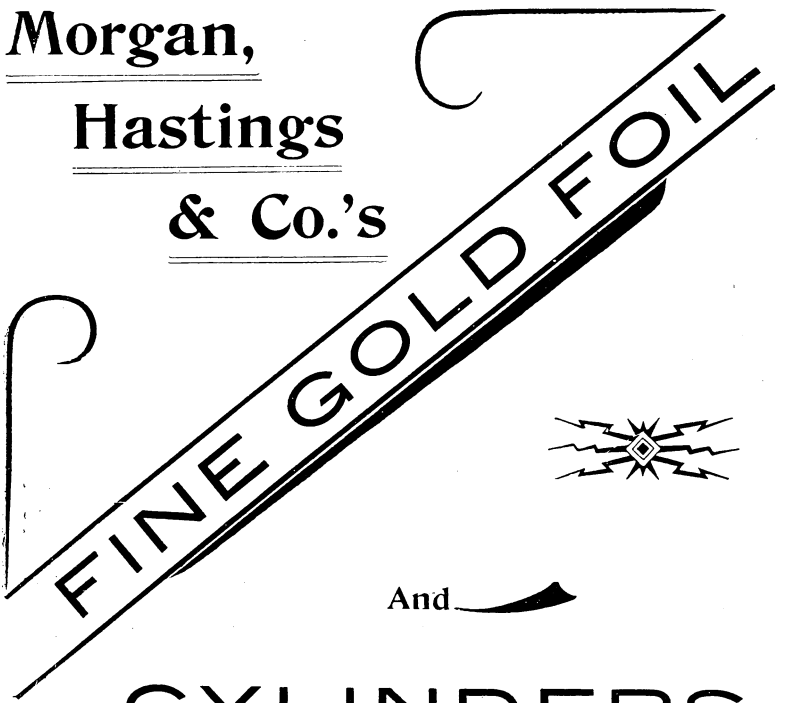
...New York.

Anaconda

DENTAL RUBBER

PRICE $4.00 PER POUND.

Morgan, Hastings & Co.'s



This is the original **Globe Gold Foil,** for twenty years made only for the S. S. White Dental Mfg. Co., and the Foil which made the world-wide reputation for "Globe." It can now be had only under the name of **MORGAN, HASTINGS & CO.** It is no longer sold under the name of "Globe."

This Foil is immeasurably superior to the modern innovations with fancy and attractive titles, and appeals most strongly to the conservative, operator. If you are not using it, in justice to yourself you must try it.

SOFT, SEMI-COHESIVE AND EXTRA COHESIVE.

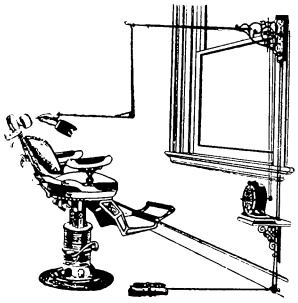
Prices of Foils, Cylinders and Ropes.

⅛ oz	$4.00
½ "	15.00
1 "	29 00
2 ozs. or more, per oz	28.00

Send orders direct to us or to any dealer.

MORGAN, HASTINGS & CO.,

819 and 821 Filbert St., Philadelphia, Pa.



THE BERRY ELECTRIC DENTAL APPLIANCES.

Powerful Engines.

These are not electrical toys. They are powerful, every-day, knock-about engines, built to run and do the work with the longest life of wearing parts.

We guarantee to keep our engines in repair for two years, free of expense. This does not mean that we have great repairing facilities, but that, due to our workmanship, we are not often called upon to make good our guarantee.

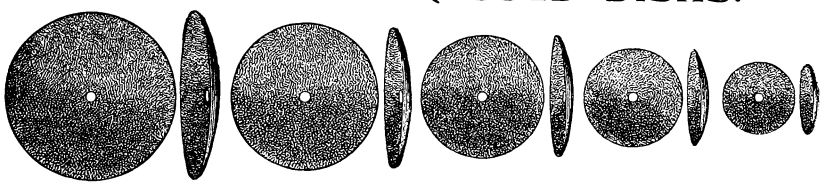
PRICES:

110-volt Engines, Japanned Iron Bracket, without hand-piece, complete	**$95.00**
Same, with cord-arm and slip-joint	**122.50**
110-volt Engine, Full Nickel Bracket, less hand-piece	**108.00**
Same, with cord-arm and slip-joint	**127.50**
Alternating Current Engine, Cable and Sheathe Style, without hand-piece	**123.00**
Cord-arm Style with Slip-joint, less hand-piece	**142.50**
110-volt Electric Lathe, including six chucks	**35.00**
Prices of separate parts on application.	
All makes of hand-pieces now on the market, each	**10.00**

BERRY DENTAL MFG. CO.,

421 Milwaukee Street, MILWAUKEE, WIS.

TEAGUE'S DEPRESSED DISKS.



⅞ inch. ¾ inch. ⅝ inch. ½ inch. ⅜ inch.

These Disks are made to fit the convex surface of a tooth and thereby preserve the contour in dressing a filling. Cut from Sand Paper, Emery Paper, Cuttlefish Paper, Emery Cloth and Crocus Cloth. Coarse and fine grits of each, except Crocus Cloth; this is of a very fine grit for a lustrous polish. In addition to the above material, Disks of fine and coarse Garnet Paper are put in the boxes of Assorted Disks. A chart for accuracy in ordering Depressed Disks furnished on application.

Depressed Paper Disks		in boxes of	100, 15 cts.
" Cloth "		" "	100, 25 "
" Assorted"	sizes ⅝ in., ¾ in	" "	200, 30 "
" " "	½ in., ⅝ in., ¾ in	" "	400, 55 "
" " "	⅜ in., ½ in., ⅝ in., ¾ in., ⅞ in.	" "	500, 70 "

OTHER SPECIALTIES:

Teague's Impression Compound	4-lb. can,	45 cts
" Sand Paper Strip Chuck		25 "
" Cavity Cap Disks	per 100,	25 "
" Capsicum Plasters	" 100,	45 "
" Arm-rest		$1.00

SOLD BY THE TRADE,

or by

DR. B. H. TEAGUE, - - - Aiken, S. C.

DENTO.

For Painless Extraction of Teeth.

The Only Absolutely Safe Anæsthetic.

Can drink a bottle and have no effect.
Guaranteed to contain no Cocaine.
One hundred dollars to any person finding any in it.
No faintness, sickness, or toxic effects.
No sore or sloughing gums.
Takes effect immediately.
Any amount can be used.
Antiseptic to the last drop.
Will not deterioriate.

Two ounces	**$2.00, by express.**
Six ounces	**5.00, express prepaid.**
Twelve ounces	**10.00, express prepaid.**

CASH TO ACCOMPANY ALL ORDERS.

A Trial Will Convince You of the Truth.

Reference:
SAFE DEPOSIT GUARANTY CO.

THE DENTO LOCAL ANÆSTHETIC CO.,

KITTANNING, PA., U. S. A.

"THE BEST PAIN OBTUNDER."

Prepared by a dentist, for the use of dentists, for extracting teeth without pain. No injections into the gums; no danger from its use or after-effects. Every tooth extracted satisfactorily to the patient. You extract one tooth, they beg you to take out the balance. Money refunded if this is not a fact.

1 oz., 75 cents. **12 ozs., $8.00.**

PREPARED BY DR. W. H. STEPHENSON, WABASH, IND.

DR. W. S. ELLIOTT'S
Improved Clasps for Dental Plates.

Patented July 28th, 1896.
(See Sept. "ITEMS.")

On receipt of **$1.00** a variety of forms will be sent, with instructions.

DR. W. S. ELLIOTT, Sag Harbor, N. Y.

The "Unique" Dental Fu'crum,

For the Instantaneous Safe and Easy Extraction of Teeth.

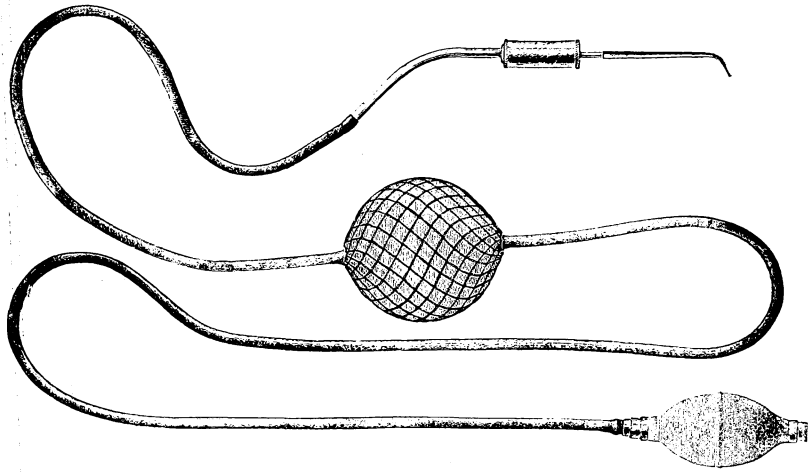
Attaches to an ordinary dental forceps.
Requires no special practice.

NO TUG AND PULL. Simply apply the forceps in the usual way, and gently **PRESS ON THE FULCRUM.** Extracts any tooth instantly, and with surprising ease to both patient and operator. Best experts use it. **By far** the best and cheapest absolutely safe and painless method extant. Address the inventor, **DR. E. H. DUNN, Elma, Iowa.**

THE ADVANTAGES OF THE

M. & M.....
Hot Air Syringe,

FOR OBTUNDING SENSITIVE DENTINE, DRYING AND STERILIZING ROOT CANALS:



1st. It is the simplest syringe on the market, being constructed without a screw or soldered joint, except the tip, and can therefore be submitted to any reasonable amount of heat without injury.

2d. Being operated by the foot allows of the free use of one hand, and consequently obviates the necessity of an assistant.

3d. The barrel is filled with strips of pure copper, which allows of the free passage of air to all parts, therefore retaining the heat much longer than the ordinary copper, or carbon bulb syringe.

DIRECTIONS FOR USING.

Adjust the Rubber-dam in all cases, remove the soft decay, dry cavity thoroughly, and place a little of the obtundent on a pledget of cotton in the cavity, and let it remain while the syringe is being heated, which will require from one to three minutes, according to the size of the burner. When heated, grasp the barrel of the syringe with a thick holder and, pumping the smaller bulb with the foot, force a continuous blast of hot air into the cavity, holding the point of the syringe as near the cavity as possible without giving discomfort to the patient, and continuing for about five minutes, then excavate. If in excavating sensitiveness should return, repeat the operation. If the above directions are faithfully observed, good results will be sure to follow.

Price, Complete, { 1-4 oz. **Syringe and Obtundent.** } **$5.00.**

Extra Bottles Obtundent, $1.00.

MACFARLANE & MILLER,

DENTISTS,

67 Warren Street, Roxbury, Mass.

For Sale by the Proprietors, or

CONSOLIDATED DENTAL M'F'G CO.

The Rynear Gold Crown.

These crowns are struck up solid from 22-karat gold plate, and are exact counterparts of carefully-selected, typical teeth of each class. They are of good weight, fine form, and well finished. The demand for these crowns has necessitated the making of larger sizes of molars and smaller and larger sizes of bicuspids, making the set now comprise 60 crowns instead of 42, as formerly furnished. The popularity of this change will be at once appreciated.

The comparatively small number of crowns forming a set renders it possible for dentists to keep a complete set in their offices, thus being able to take full advantage of any case that presents itself. To meet this demand, we furnish a full set—36 molars and 24 bicuspids—mounted on pegs, each crown properly numbered, and placed in a handsome leather-covered case.

The diagram on the opposite page gives exact sizes of crowns at the neck. To decide on the size required, twist a piece of binding wire around the neck of the tooth, tighten by twisting the ends, compare with the diagram and select nearest size. Order *by number only*.

CROWNS FITTED TO CASTS WITHOUT EXTRA CHARGE.

PRICES:

Set complete, 60 crowns, in a neat case		**$125.00**
Bicuspids, 22-karat gold	**each,**	**2.00**
Molars, 22- " "	**"**	**2.50**

Crowns of 24-karat gold made to order at a cost of $1.00 extra per crown.

Manufactured by

THE RYNEAR CO., 1267 Broadway, N. Y.

For sale by

THE CONSOLIDATED DENTAL M'F'G CO.,

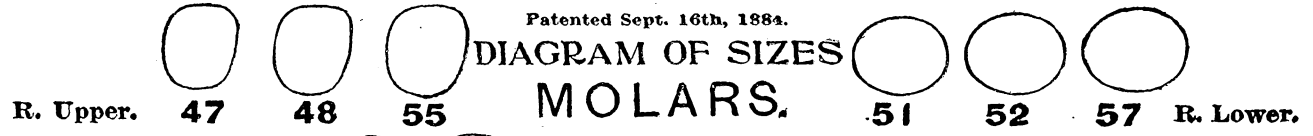
And all other reliable Dental Depots.

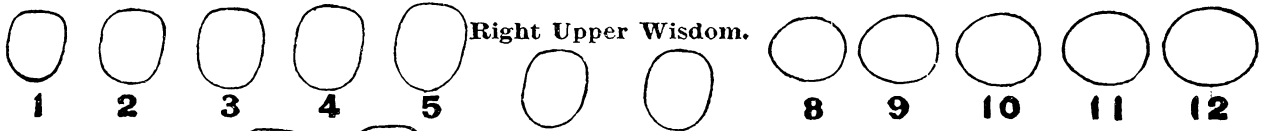
THE RYNEAR CROWN.

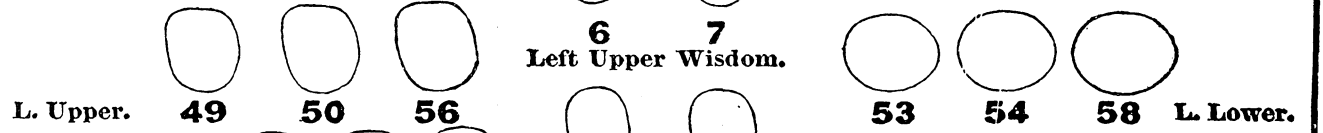
Patented Sept. 16th, 1884.

DIAGRAM OF SIZES

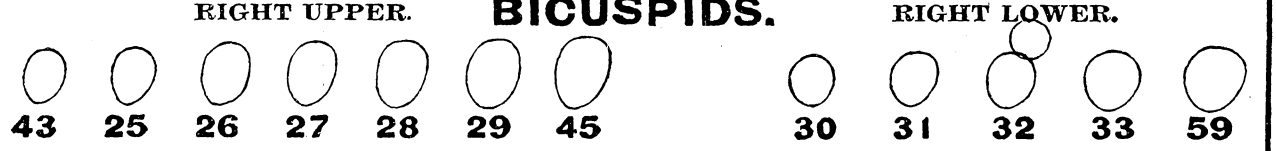
MOLARS.







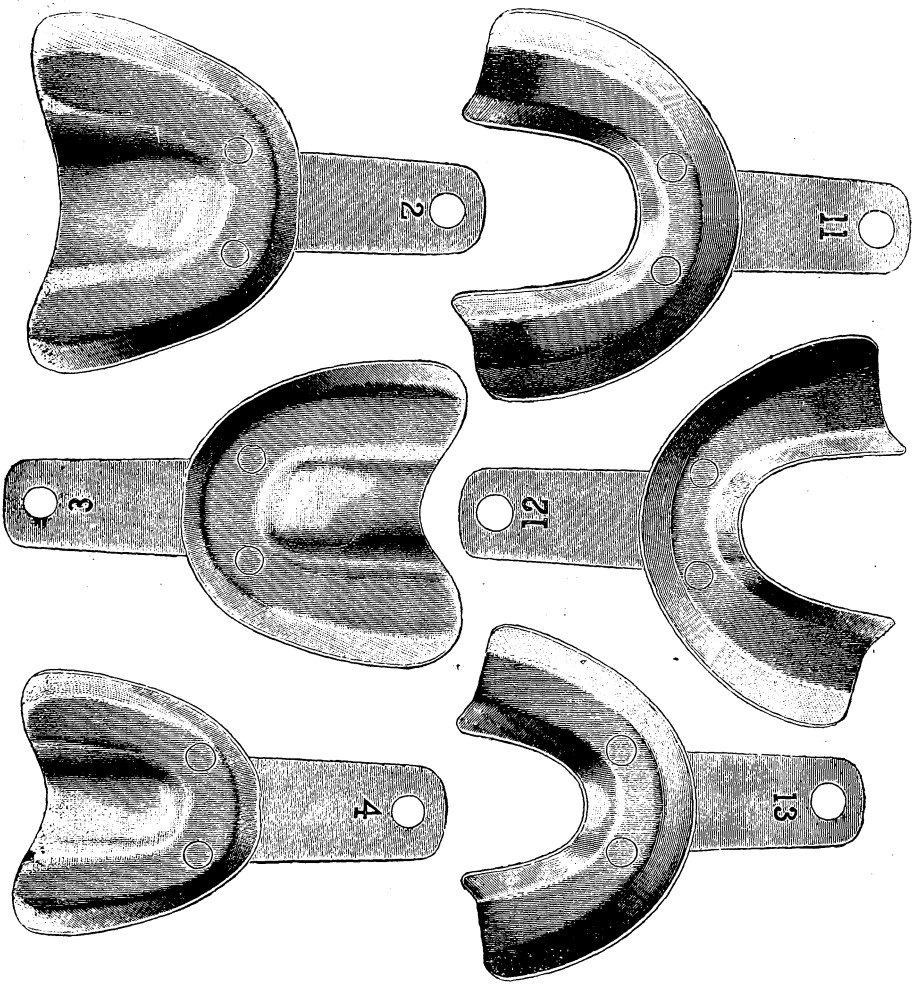
BICUSPIDS.



FLEXIBLE ALUMINUM Impression Trays : : : :

SWAGED FROM SHEET ALUMINUM.

THE NEATEST TRAY EVER MADE. ALL NEW SHAPES.



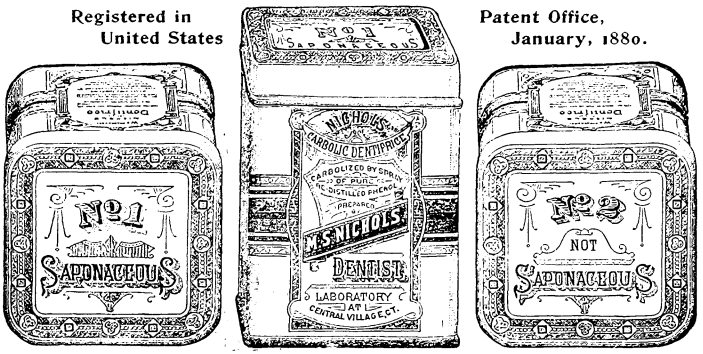
THIS new tray presents many features of advantage which the trays in general use do not have. Being made of aluminum they do not tarnish, and present a much neater appearance than Britannia metal trays. Their flexibility makes it possible to bend them easily with the hand, and adjust them to different widths, which every dentist will readily see is a very great advantage. As the flanges are made extra deep, and the bottom somewhat square, impressions can be taken for partial as well as full cases. These six trays are all a dentist needs to take almost any impression. Cuts are about ⅔ full size. Send for Catalogue.

Price, each, = = = = = 25c.

Detroit Dental Manufacturing Co., 93 SHELBY ST., DETROIT, MICH.

NICHOLS'• CARBOLIC • DENTIFRICE.

Registered in United States Patent Office, January, 1880.



Medicinal Properties: Antiseptic, Disinfectant, Prophylactic.

WE prepare two kinds of this Dentifrice, both of which are **Carbolized by Spray of pure Re-Distilled Phenol.** No. 1 is saponaceous, No. 2 is not; otherwise they are very near alike. To those who are subject to cancrum oris, and in all aphthous and scorbutic conditions of the mouth these powders cannot be too highly recommended. They are agreeable to the taste, soothing in their action upon the mucous surfaces, and impart to the mouth and breath a prolonged sense of coolness and cleanliness experienced by the use of no other Dentifrice, meeting every requirement of a Dentifrice for daily use.

They are put up in beautiful enameled cans, as shown above; also in two and four ounce bottles, the style of cut. Every bottle in a fancy manilla cartoon ready to retail without other wrappings.

PRICES,
Nos. 1 and 2 Powders.

In ¼, ½ and 1 lb. cans	per lb.,	$1 00
For 10 lbs	"	90
In 2-oz. bottles, fancy corks	per doz.,	1 75
" 2- " " "	" .. per gross,	17 85
" 2- " " nickel tops	per doz.,	2 10
" 2- " " " "	....per gross,	21 00
" 4- " " fancy corks	per doz.,	2 50
" 4- " " " "	...per gross,	25 50
" 4- " " nickel tops	..per doz.,	2 80
" 4- " " " "	...per gross,	28 50

.....For Sale by.....

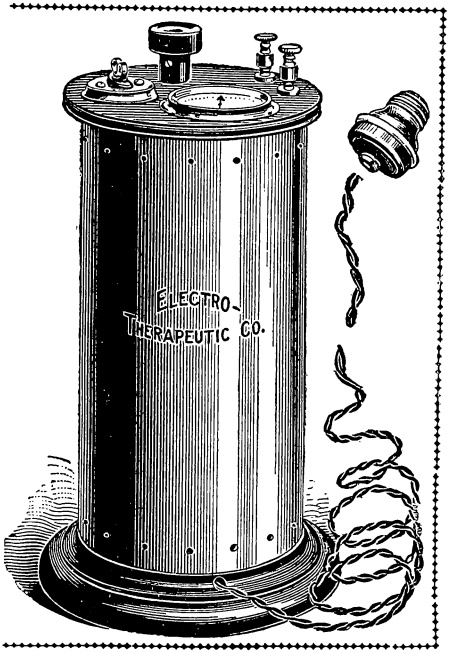
CONSOLIDATED DENTAL M'F'G CO.,

53 W. 42d Street, New York, N. Y.

Cataphoresis

If not PAINLESS is of little use, but there is no possible question about the success of Cataphoresis when done in the proper manner.

IT IS PRACTICALLY INFALLIBLE WHEN APPLIED IN THE RIGHT WAY



WITH THE

G. M. WHEELER Fractional Volt Selecter,

which is a current *pressure* controlling apparatus that has never failed to annihilate pain, and has never failed to make Cataphoresis a complete success where it has been properly used.

The G. M. Wheeler Fractional Volt Selecter can be used in connection with the current derived from the Edison street lighting circuit with absolute safety, or with our *Cataphoretic Battery*, or any good galvanic battery. It possesses two features which make it unique as an electrical device, and which give it great superiority over any other apparatus used for cataphoric medication. The first is that it *automatically* adjusts the current to the varying resistances of the patient and medicaments. No rheostat ever did this or ever will do it. The second feature is that the operator can break contact with the patient without the painful shock experienced when rheostats are used. These two points are vital, and are absolutely essential to successful and *painless* Cataphoresis.

The price of our Selecter is a little higher than it costs to buy a rheostat outfit, and yet our apparatus is the most economical because it never fails in doing *painless* Cataphoresis in the *quickest time*, and by the surest, safest, and most scientific methods.

We make electrodes of every variety. Our "Synthesis on Cataphoresis" and Catalogue will be sent free on application.

THE ELECTRO-THERAPEUTIC CO.,

32 EAST TWENTY-THIRD STREET,

NEW YORK CITY.

Pyrozone Solutions

FOR DENTAL USE.

Pyrozone 3 per cent. Solution. A stable aqueous solution of H_2O_2 conforming to the standard of the United States Pharmacopœia. Supplied only in 4 oz., chemically clean, glass-stoppered bottles.

Invaluable as a mouth-wash and as a cleansing agent for the teeth. Destroys pus, blood-stains, and green-stain on the teeth.

Pyrozone 5 per cent and 25 per cent. Solutions. (Ethereal.) Supplied only in small glass tubes.

Invaluable for bleaching teeth and for topical applications in Pyorrhœa Alveolaris. Pyrozone 25 per cent. is also an excellent hæmostatic.

NOTE—*To open tubes of pyrozone 5 and 25 per cent. solutions, wrap the tube in a cloth and nip off the tip with a pair of forceps having concave beaks. Do not hold the tube in the open hand, as the warmth of the latter is sufficient to boil the ether and so cause pressure to develop.*

The Dental Manifestations of Gout.

The researches of Dr. E. C. Kirk and Dr. C. N. Pierce have shown the co-existence of the uric acid diathesis with certain forms of suppurative gingivitis or pyorrhœa alveolaris.

Tartarlithine

has been proved to be of great value in this disease. Elimination of the excess of uric acid can be most advantageously secured by administration of this new organic acid salt of lithium.

Dr. E. C. Kirk, (Philadelphia, Pa.) says in the "Lancet:"

The promptness of its action is in many cases astonishing, a subsidence of distressing symptoms quickly following the administration of three doses of five grains each, taken four hours apart in a half pint of water on a reasonably empty stomach. The use of Tartarlithine in the quantities named has sufficed in all cases so far treated—about twenty in number—to practically cure the disorder, temporarily, at least.

Tartarlithine is Supplied in Bottles Containing 100 Tablets.

Literature and Sample Sent Free on Application.

McKESSON & ROBBINS, New York.

Sole Agent for the Dental Trade,

THE S. S. WHITE DENTAL MFG. CO.,

Philadelphia and New York.

A Trial Bottle Free of Charge!

To every Dentist in the World that will mail a postal card stating what Anæsthetic they are now using. . .

PRICE, in 2-oz. Bottles: { 2 ozs. . . $2.00 / 6 ozs. . . . 5.00 / 12 ozs. . . 10.00

WE WILL GIVE

A $3.00 Dental Hypodermic Syringe

FREE for your first $5.00 order. This offer cannot be obtained from the Dental Depots. . . .

SATISFACTION GUARANTEED OR MONEY REFUNDED.

Dr. Waite's Anæsthetic may be obtained from the following Dental Depots:

Consolidated Dental M'f'g Co., N.Y. City.
Johnson & Lund, Philadelphia, Pa.
E. C. Leyden, Rochester, N. Y.
E. A. Peirce & Co., New York City.
Dental Protective Supply Co., Chicago, Ill.
Jacksonville Dental Depot, Jacksonville, Fla.
The Walker-Browne Dental Co., Atlanta, Ga.
Birmingham Dental Depot, Birmingham, Ala.
Physicians' Supply Co., Kansas City, Mo.
S. H. Clawson, Salt Lake City, Utah.
C. A. Davis, Pasadena, Cal.

THE ANTIDOLAR M'F'G CO., * SPRINGVILLE, ERIE CO., N. Y.

...CATAPHORESIS.

The Van Woert

is the most complete Battery made for the Obtunding of Sensitive Dentine.

This Battery

CONSISTS OF

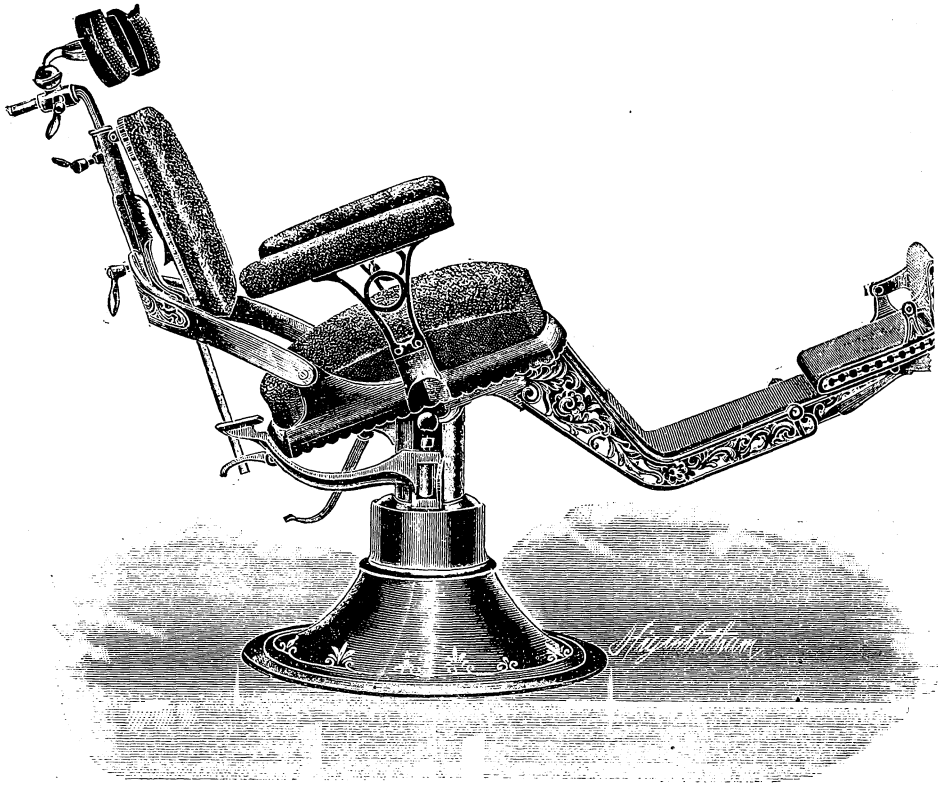
21 Dry Cells, Volt Selector, Current Controller, Milli-amperemeter,

with a complete set of Electrodes.

All inclosed in a highly-polished, quartered oak case.

Price, $50.00.

ANTIDOLAR M'F'G CO., * SPRINGVILLE, ERIE CO., N. Y.



New Archer Pedal Lever Chair, No. 8, at its lowest point, and tilted, with back upright and footrest extended.

...THE ARCHER...
PEDAL LEVER Dental Chairs,
For 1897.

The many good improvements we have put into our new Dentist Chairs Nos. 8 and 9, make them the most perfect and satisfactory operating chairs, both for the patient and operator, ever placed on the market. They are both made with high-low base, all the different tilting movements, rotary motion; can be converted into a Child's chair, with low back, short seat, short footstool, arms closer together, almost instantly. The new back support works quicker and easier than any other chair in the world. We have *all* the latest and best movements. Every movement is smooth, silent, without lost motion. *No oil, glycerine or other liquids used in movements. Mechanical appliances only. Nothing to get out of order.*

Illustrated price-list mailed on application, fully describing different positions.

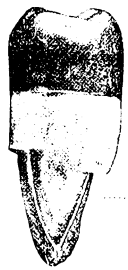
ARCHER MANUFACTURING CO.,

13 North Water Street, ROCHESTER, N. Y.

PRACTICAL. SCIENTIFIC.

Weld's

"CHEMICO-METALLIC METHOD"



A. Anterior view of anterior root of lower molar with two nerve canals disinfected and filled by the CHEMICO-METALLIC METHOD; root filed away, showing metal, oxide, albuminate, etc. Time of operation, three minutes; putrescent pulp IN CANALS not extracted.
Photographed from the original tooth. Harjes & Wright, New York.

For Filling the

DIFFICULT ROOT-CANALS

OF

SEMI-DEVITALIZED TEETH.

THE Method presupposes, as a rule, no loss of tooth substance; that wherever one of the finest Donaldson Steel Broaches can be introduced into a root-canal, whatever its length, whether straight or tortuous, whether filled with semi-devitalized matter or putrescent pulp and fetid gases, that canal can be disinfected and filled within a period of five minutes; that the chlorine gas employed tends to disinfect the dentinal fibres in the roots, assuring permanency of asepsis. Full information and instruction, together with package containing acid and points sufficient in quantity and number to fill thirty root-canals, will be sent, post-paid, on receipt of : : : : : :

PRICE, - - $3.00

To any dentist giving the method a conscientious trial the money paid will be refunded if the results prove unsatisfactory.

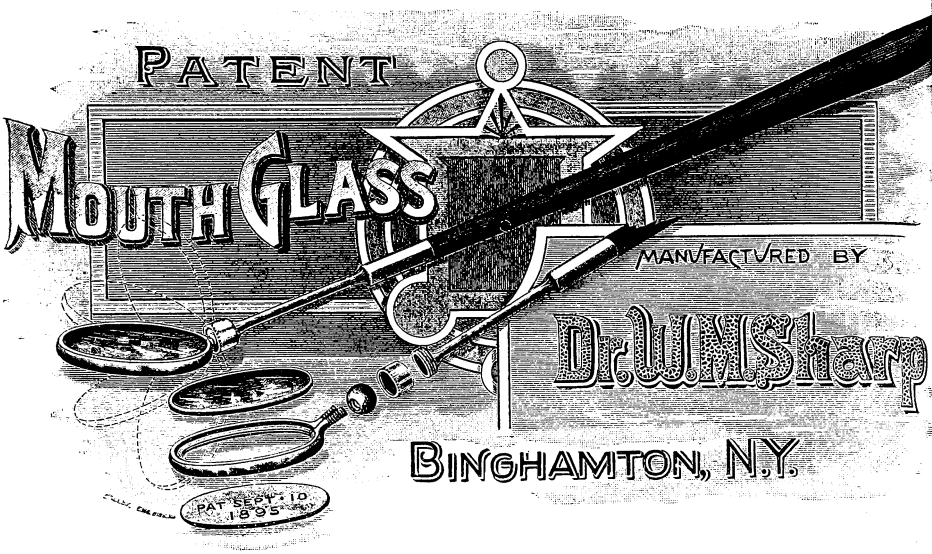
ADDRESS,

G. W. WELD, M.D., D.D.S.,

Broadway and Twenty-sixth St.,

NEW YORK.

DELICATE. PERFECT.



DEAR DR. SHARP: BOSTON, October 20th, 1896.

In reply to your inquiry, will say I am much pleased with your Mouth Mirror. I have taken great satisfaction in the use of it. The ball joint I find very useful to turn the glass at different angles, as the case requires. And the Mirror is a little the brighter and clearer than any I have ever used.

Yours truly, A. S. HILL.

DR. W. M. SHARP: BROOKLYN, N. Y., 133 Pacific St., October 19th, 1896.

Dear Sir:—The Mouth Glass ordered arrived this morning I examined it with a great deal of satisfaction, as it is something I have been trying to get for a long time. The workmanship on the instrument does you great credit; it is so superior to anything I have seen put on Mouth Mirrors. I am not only pleased with it, but feel under obligations to you for putting it on the market; hoping you will have what you deserve—big sales for a good article at a reasonable price. Yours truly, LOUIS SHAW.

DR. W. M. SHARP: SPRING CITY, CHESTER CO., PA., October 22d, 1896.

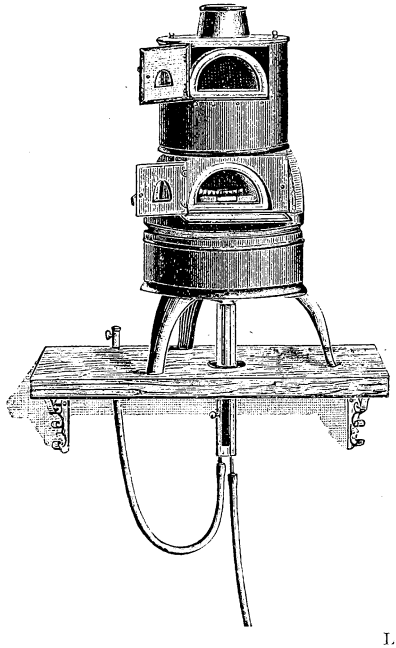
I take pleasure in commending to the profession the Mouth Mirror of which you are proprietor. It is a saving, as well as a convenience, which the profession has needed for years; and think it should be indorsed and praised by us all. Believe me, Thine in service, S. W. RIDGWAY.

DR. W. M. SHARP: SYRACUSE N. Y., October 25th, 1896.

Dear Sir:—Your Mouth Glass is the best and most convenient I have ever used.

Yours very truly, O. A. GLIDDEN.

Send $1.50 and receive one of these instruments. For particulars concerning it see Items of Interest, October.



SHARP Dental Furnace

DR. W. M. SHARP, Binghamton, N. Y.

Dear Sir:—In reply to your favor, I will say that I was very much pleased and interested in the demonstration you made before me of your Gas Furnace, and you satisfied me that with it you could bake any porcelain compound used in the manufacture of artificial teeth, or for porcelain inlays, etc., perfectly, without any discoloration of the porcelain. I am satisfied that anyone with proper experience in handling the same would meet with perfect success.

Yours respectfully, GIDEON SIBLEY.

DR. W. M. SHARP, Binghamton, N. Y.

Dear Sir:—Your little Furnace is the very acme of neatness, and shows great ingenuity in its construction. I could say nothing to show my appreciation more fully than that I used it to make two porcelain bridges, and through them won the prize in that branch at the Baltimore College of Dental Surgery. My success has been so marked by its use, that it soon graced my laboratory, and I heartily assert that it exceeds anything that I have tried in the shape of a porcelain furnace.

Yours truly, H. C. GRIFFITH, D.D.S.

For the Details concerning this Furnace, see ITEMS for September.

FOR SALE BY ALL DEALERS.

Do you use Rubber-Dam?

ALL DENTISTS are interested in securing Rubber-dam of a superior quality. We have been manufacturing Rubber-dam for the last 20 years, which has given universal satisfaction, and has met with the heartiest approval of the dental profession.

DO YOU WANT to get Rubber-dam; that is, made from the finest quality pure para rubber, and by the best known methods?

FREE FROM ALL OBJECTIONABLE ODORS.
TOUGH AND OF UNIFORM QUALITY.
FREE FROM ALL FOREIGN INGREDIENTS.

IF SO, use our Rubber-dam, which can be obtained from all dental depots. If you cannot get it, send us $1.50 and we will send, post-paid, to any part of the United States or Canada, one yard of our medium thickness Dam.

OUR RUBBER-DAM is guaranteed to give perfect satisfaction for dental purposes.

Manufactured by

The Seamless Rubber Company,

NEW HAVEN, CONN.

ELECTROCAINE.

(TRADE MARK.)

For the RAPID PRODUCTION of Local Anæsthesia by....

CATAPHORESIS.

SINCE the introduction of Cataphoresis, the principal problem which has confronted its users and advocates has been the necessity of the reduction of time consumed in producing anæsthesia. It has been well understood that this could only be accomplished by the discovery of some agent as a vehicle for cocaine, which would act as a conductor for the electric current. This result has been attained in *ELECTROCAINE*, a combination of electrozone and 15 per cent. of anhydrous hydrochlorate of cocaine, the product being an absolutely perfect conductor of electricity, having practically no resistance whatever.

The *Electrical Engineer*, of August 5th, 1896, in an article on the Annual Convention of the New Jersey State Dental Association, says, in regard to their new preparation, as follows:

"It will be remembered that, at the last convention of the association at the same place, quite a sensation was created by Dr. Gillette's paper on 'Cataphoresis in the Obtunding of Sensitive Dentine.' The principle of the electrical anæsthetizing of the tooth, so as to enable dental operations to be carried out painlessly, had long been discussed, but the time occupied in creating the anæsthesia was so long as to be virtually prohibitive. A patient might sit in the chair half an hour, and still not be sure that his tooth was so obtunded that it could be operated upon without pain. The loss of time was serious, the nerves of the patient were disorganized, and not improbably those of the operator also. Dr Gillette showed that the cataphoric method could be brought down to an operative duration of, on the average, seven or eight minutes. This meant that really painless dentistry was at last within reach, and further investigations in cataphoresis were actively pushed.

"This activity has borne somewhat remarkable fruit. Foremost among those who have taken up the subject is Dr. G. Carleton Brown, the results of whose work may be said to have formed the principal feature of this year's convention. Cocaine, which is the standard drug used by dentists for anæsthetizing, is a non-conductor, and to be effective in cataphoresis it had to be blended with an electrolyte. Upon the effectiveness of this combination hung the whole time question of anæsthetic operations. Dr. Brown has discovered that, by making a 15 per cent. solution of hydrochlorate of cocaine and *ELECTROZONE* (a product of electricity), and saturating the electrode cotton with it, perfect anæsthesia can be secured within a minute and a half. A singular point in the production of the obtunder is that after the component parts are placed in the graduated tube even in carefully-ganged proportions, there is no certainty that the product will come out all right. It should have a yellowish precipitate, if the color is white, the product is of no use."

ELECTROCAINE, made according to the formula of Dr. Brown, has given more rapid, positive and satisfactory results than any other preparation, absolute anæsthesia of dentine being obtained in from three to five minutes, it being the exception where a longer time is required. For extirpation of pulps, its action is even more remarkable, and on soft tissues the time of application is reduced more than one-half.

In *ELECTROCAINE* we have a new chemical combination, which, while retaining characteristics of each of its ingredients, has marked ones of its own; it is entirely neutral, and has absolutely no escerotic effects, no especial care being required in its use other than that ordinarily employed where cocaine is used. The cocaine is completely dissolved and held in solution, and, when applied cataphoricly, is more deeply penetrating, consumes only one-quarter the time, and requires much less current than the ordinary cocaine solutions.

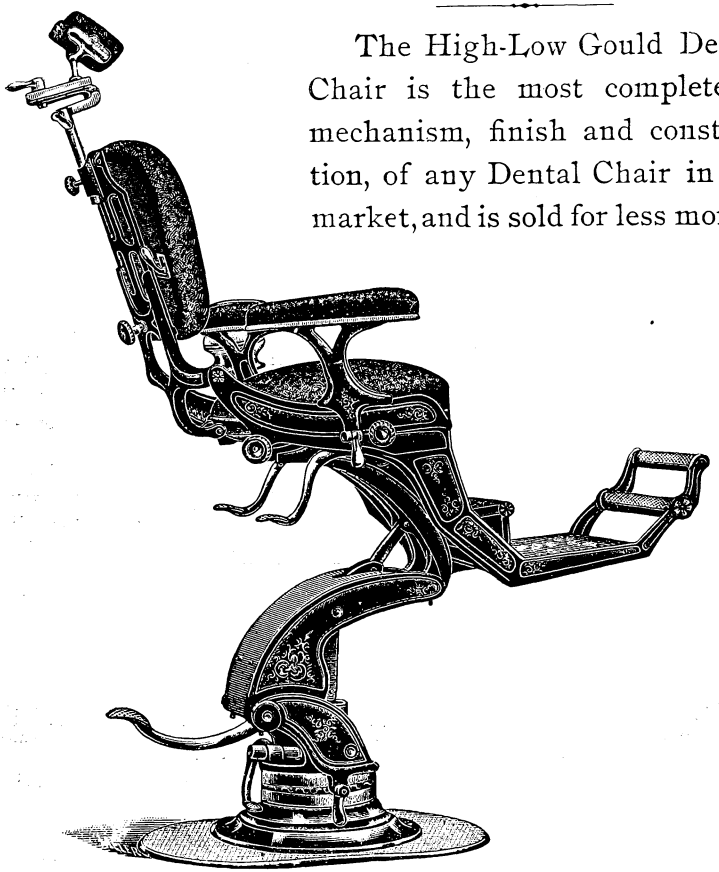
ELECTROCAINE is prepared exclusively for professional use in one-drachm glass-stoppered vials.

PRICE, 75 CENTS.

Sole Manufacturer, **A. S. BROWN,** 161 West 108th St., NEW YORK.

For Sale by **CONSOLIDATED DENTAL M'F'G CO.**

HIGH=LOW
Gould Dental Chair.



The High-Low Gould Dental Chair is the most complete in mechanism, finish and construction, of any Dental Chair in the market, and is sold for less money.

FIG. C.—Highest Position, 39 inches; Lowest Position, 19½ inches.

Prices, Packed and Delivered on Cars at Factory:

No. 54.	Plain Mohair Plush (maroon or olive),	$125.00
No. 52.	Frieze Plush,	130.00
No. 50.	Valure Frieze Mohair Plush,	135.00

Canton Surgical and Dental Chair Co.,

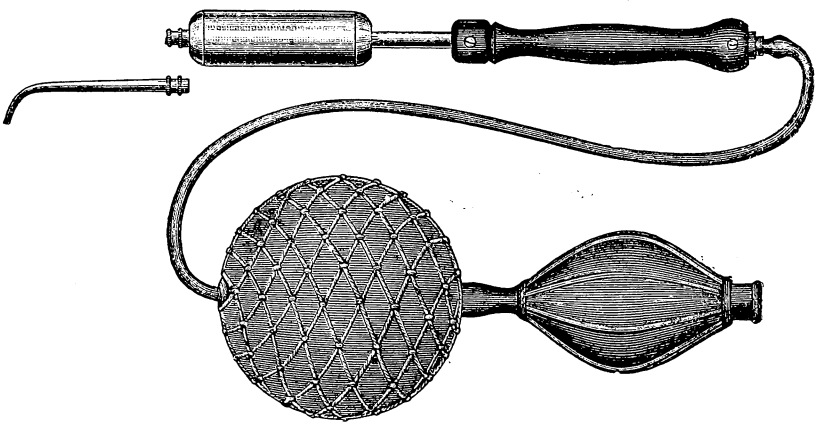
SOLE MANUFACTURERS OF

CANTON SURGICAL CHAIRS, YALE SURGICAL CHAIRS, GOULD DENTAL CHAIR, NEW MODEL GOULD DENTAL CHAIR, HIGH-LOW GOULD DENTAL CHAIR, FLETCHER FOUNTAIN SPITTOON, DENTAL ENGINES, ETC.

☞ *Received Highest Award at World's Fair.* ☜

Offices and Factory: New Nos. 302 to 340 East Eighth St., **CANTON, OHIO, U. S. A.**

A NEW AND LATELY IMPROVED **WARM AIR SYRINGE,** PERFECTED BY DR. THAYER.



For causing the **RAPID ABSORPTION** of Dr Thayer's Number Four A=O- *into Dentine*, to produce a **SPEEDY ANÆSTHESIA.** so that, any Dentine, **NO MATTER HOW SENSITIVE,** can be excavated in ten minutes from starting, **ABSOLUTELY WITHOUT PAIN,** with **NO INJURY** to the Pulp, or Tooth. Also for drying out Root Canals

Can be heated up in **ONE MINUTE** and will retain its heat for **TEN MINUTES.** Can be regulated at pleasure.

Imported bulbs, filled Chamber, continuous shaft through handle, and thoroughly constructed. Price, **$5.00.** Nothing desirable has been neglected. Flow of warm air continuous and perfect.

A special composition Holder for grasping hot cylinder, so as to obtain a *short* and *convenient action.*

Price, 50 cts. All sent C. O. D. and express charges. Or, upon receipt of a Money Order, free, by mail

W. IRVING THAYER, D.D.S., M.D., Williamsburgh, Massachusetts.

THE FIFTEEN WOES

OF DENTISTRY.

(1st—**Extra Sensitive Dentine.** 2d—**Buccal, Cervical** or **Labial** cavities in nervous patients. 3d—**Erosions.** 4th—**Exposed Pulps.** 5th—**Congested Pulps.** 6th—**A Blind Abscess.** 7th—**Chronic Alveolar Abscess.** 8th—**Peridental Inflammations.** 9th—Parts threaten to **Ulcerate** after putting on a gold crown, or filling root-canals. 10th—**Obstinate Pyorrhœa.** 11th—**Deep Serumal Deposits.** 12th—**Necrosis.** 13th—**Stomatitis.** 14th—**Cementitis,** and 15th—**Certain Extractions**), **May be met and Successfully Overcome by the Use of**

DR. THAYER'S A-Os.

ONE! TWO!! THREE!!! FOUR!!!!

"Your remedies work charmingly. I use them continually." J N. FARRAR, M.D., D.D.S., New York. Dr. Farrar is the author of that popular treatise on Irregularities of the Teeth. We have many references from equally eminent men A contest for **One Thousand Dollars** to be given to some designated charity if an anæsthesia on Extra Sensitive Dentine cannot be obtained in **less time** with Number Four A=O, than by any other means, and at no cost to the pulp or tooth structure.

Number One A=O, to Obtund Dentine ONLY! Price **$1.50**

Number Two A=O, to Benumb Soft Tissues. Operates topically, and in 15 seconds. Use, to Adjust Dams, Clamps, Ligatures, Crowns, Cutting. etc. Price, **1.50**

Number Three for Extracting by Injection. There will be no Fainting, or Cause any Undesirable Sequelæ. Anæsthesia lasts EIGHTEEN MINUTES. Price, $1.00 oz. Ten ozs. **9.00**

Number Four A=O. Hypersensitive Dentine. For Pulpitis. a SOVEREIGN REMEDY! Blind or Chronic Abscess RADICALLY CURED AT ONE SITTING! Necrosis. Obstinate Pyorrhœa. Serumal Deposits. Will Abort the Formation of an Abscess, and CURE the VARIED FORMS OF PERIDENTAL INFLAMMATIONS as Never Controlled Before. Price **$3.00**

If the slightest misrepresentation has been made, money returned. Write for further information if wanted. **Full, Clear,** and **Detailed Directions,** which any dentist can successfully carry out, are sent with every bottle. Any of the above Anæsthetо Obtundents will be sent by mail, on receipt of Money Order. Or, you can buy at your Dental Depot.

W. IRVING THAYER, D.D.S., M.D., Williamsburgh, Massachusetts.

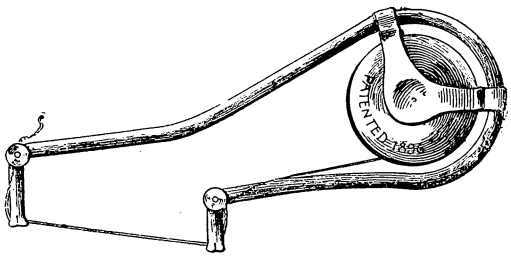
CUTTER'S DENTAL FLOSS HOLDER

OFFERS to users of FLOSS an easy mode of manipulation heretofore impossible It carries a bobbin of "Cutter's Silk Floss," and when designed for the vest pocket is enclosed in a leather case.

Price, . . . 50c.
In leather case, 75c.

FOR SALE BY

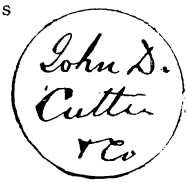
Druggists and Dentists.



John D. Cutter & Co., SILK MANUFACTURERS,

No. 1 Union Square, New York City.

Each spool of waxed floss has its individual box and on one end bears our SIGNATURE, thus

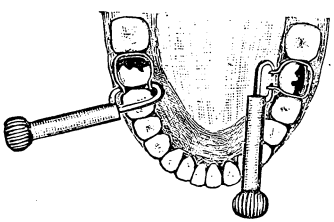


"Your Floss Silk has given me better satisfaction than any other make."
EDGAR PALTNER,
Secretary of the State Board of Dental Examiners, Wisconsin.

"Yours is the only really good floss in the market."
J. G. SEYMOUR, EAST ORANGE, N. J.

Beware Counterfeits—Be sure you buy the Genuine.

The Standard Matrix Retainer.



THIS new Retainer is simple, plain and reliable, easily adjusted, can be used on buccal, lingual or palative surfaces of the teeth, as shown by cut. It takes but a minute to attach it; when screwed up, holds the matrix firmly in place. While supporting weak walls it insures the original shape of the tooth. It is of exceptional benefit in building up in buccal cavities; in such cavities it forms a secure wall in which to pack against, thereby enabling you to pack your filling much more solidly than you otherwise can. When the band is removed the filling is practically finished. A great saving of time in packing gold fillings, as no filing is required.

PRICE, $3.00.

J. M. STROUT,

457½ Congress Street, - - Portland, Me.

Over Five Years' Standing Without a Single Fatality.

Odontunder

WRITE FOR OUR SPECIAL TERMS.

Odontunder is Guaranteed to Give Perfect Satisfaction.....

RECENT TESTIMONIALS.

ODONTUNDER M'F'G CO., 748 Marietta street, ATLANTA, GA., Sept. 24th, 1896.

GENTLEMEN:—Please send me at your earliest convenience, ten ozs. Odontunder, C. O. D. I am well satisfied with it and its after-effects, and think there is nothing like it. I find it gives perfect satisfaction. Yours truly, J. A. MINER, D.D.S.

ODONTUNDER M'F'G CO., BAINBRIDGE, N. Y., July 30th, 1896.

GENTLEMEN:—Please send me one two-oz. bottle of Odontunder by return express. Enclosed find express order for same, $2.50. We are very much pleased with its effect; it is certainly the best of its kind we ever used. Shall order ten ozs. next time.

Yours very truly, O. S. HILL, D.D.S.

ODONTUNDER M'F'G CO., Fredonia, N. Y. FARMINGTON, ME., April 1st, 1896.

GENTLEMEN:—Enclosed please find express order for $10. Send Odontunder by first express, as I am nearly out. Have used nearly a bottle this forenoon. I am having and always have had perfect success. Very respectfully, J. R. KITTREDGE, D.D.S.

ODONTUNDER M'F'G CO., Fredonia, N. Y. TUPELO, MISS., June 4th, 1896.

DEAR SIRS:—Please send me immediately 10 ozs. of Odontunder, C. O. D. Since trying the last 10-oz. order, which used most successfully, I have decided to use it exclusively in my practice. It is superior to all others. Yours very truly, W. B. SIMMONS, D.D.S.

So generally is Odontunder used that we guarantee to send you the name of some friend or classmate who is using it, with whom you can correspond.

Single Bottles, 2-oz.....$2.50 by Express.
Two Bottles, 4-oz..... 5.00, Express Prepaid.
Five Bottles, 10-oz.....10.00, Express Prepaid.

Odontunder will not Deteriorate. Every Bottle Guaranteed.

Cash to accompany order or goods sent C. O. D.

REFERENCES: Commercial Reports, Fredonia National Bank. **ODONTUNDER M'F'G CO.,** Fredonia, N. Y.

Platinoid

A Substitute for Platina.

Fuses at 26.00° Fahrenheit. 22Kt. Gold Solder can be Used. Pins and Screw Posts for Crowns.

Three pieces three inches square ASSORTED GAUGES for CROWN- and BRIDGE-WORK. $1.00.

Ask your dealer, or send to

MANHATTAN DENTAL CO.,

745 Sixth Avenue, NEW YORK.

NO doubt you think your method of polishing Gold Crowns, Plates, Bridges and Rubber Work *to be the best; but* send me

50c. in stamps for a Cake of **MY "DENTIST'S FRIEND"**

for removing the file-marks, and you will say it is the *BEST* polish you ever used.

Manufactured in Cake form ready prepared for immediate use.

Testimonials from leading dentists.

A. W. THOMA,

Mineralpoint, Wis.

TICKLED BECAUSE IT DIDN'T HURT.

It Never Hurts

TO EXTRACT TEETH WHEN

Paralesia

TRADE MARK.

IS USED.

Nor is there any danger of constitutional effect.

It is **ABSOLUTELY SAFE.**

Contains less than 1 per cent. Cocaine; less than 1-5 of 1 per cent. Phenol; no Morphia; no Atropia.

ENDORSED BY HUNDREDS WHO ARE USING IT.

The only **GUARANTEED** Local Anæsthetic on the market.

Money refunded if satisfaction is not given.

With the first order for $5.00 will be sent free of charge a good Hypodermic Syringe; and with first $10.00 order a "Neal" all-metal Dental Syringe. "A $4.00 Syringe and 16 ozs. of the best Local Anæsthetic for $10.00."

E. A. AULT, MANUFACTURER, - **MARYSVILLE, KANS.**

Blair's Fountain Spittoon.

$40.00 Complete for attaching to chair.

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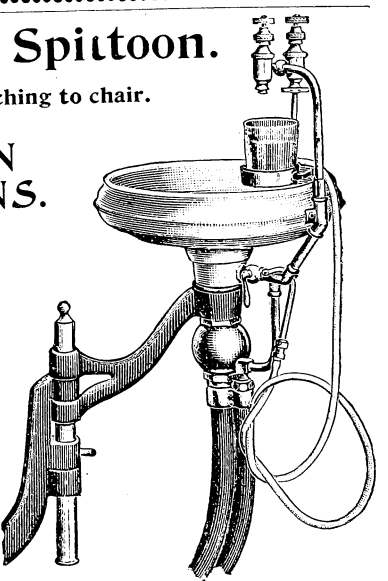

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The fact that Dentistry must be *practically taught* is fully recognized, *the College Infirmary*, a most complete, large and handsome *Hall*, being daily filled with clean and respectable patients, of a class nearly equal to those of the average dentist. *This Infirmary is open all the year*, students paying an entrance fee which is deducted from those of the regular succeeding course.

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TERMS OF GRADUATION.—Attendance on three Winter Courses of lectures in this College. As equivalent to one of these we accept *one course* in any reputable Dental College. *Graduates in Medicine* can enter the Junior Class.

BENEFICIARY STUDENTS.—Each State Dental Society is privileged to send one Beneficiary Student to this College at one-half the regular tuition fees. This has been for some years an established feature of this College.

FEES.—Matriculation (paid once only), **$5.00.** Tuition fees, **$100.00.** Diploma fee, **$30.00.** Dissecting fee, **$10.00.**

Students corresponding with the Dean will please be careful to give full address, and direct their letters to

Prof. M. W FOSTER, Dean,
No. 9 W. Franklin St., Baltimore, Md.

CHICAGO COLLEGE OF DENTAL SURGERY.

Dental Department of Lake Forest University.

The Annual Winter Course of Instruction will begin about October 1st, 1896, and end about April 1st, 1897.

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Graduates of the Chicago College of Dental Surgery will be admitted to the medical colleges, and may become candidates for graduation in medicine after attending two full courses of lectures.

Graduates of the Chicago College of Dental Surgery are excused from the lectures on anatomy, physiology and chemistry, from chemical and histological laboratory work and dissecting.

Students desiring to graduate in medicine are required to notify the Dean in writing of their intention at the beginning of their second course.

Course of instruction in this institution is graded.

TOPICAL STATEMENT OF WORK.

FIRST YEAR.

During the Freshman year the studies taken up are: Theoretical and Practical Chemistry, Anatomy, Physiology, Materia Medica, Dental Anatomy, Histology, Operative and Prosthetic Technics and Operative and Prosthetic Dentistry.

Recitations in this course are conducted daily in commodious rooms specially arranged for this method of teaching. Stated lessons assigned from approved text-books supplement the didactic lectures and work in the laboratories.

SECOND YEAR.

During the Junior year students complete the work in Anatomy, Physiology, Chemistry, Histology, Pathology, and Bacteriology and Materia Medica. In addition to this, they receive instruction in Comparative Dental Anatomy, Crown- and Bridge-work, Regulating Appliances, Splints and all kinds of Plate Work, and operate in the Infirmary

THIRD YEAR.

During the Senior year the students listen to lectures on Oral Surgery, Therapeutics, Operative Deutistry, Dental Anatomy and Pathology, Orthodontia, and attend Clinics. In addition to the lectures, each student is required to operate in the Infirmary, and perform practical work in the Laboratory.

Matriculation Fee, good to the close of the term, - $5.00
General Ticket, - - - - - - 100.00

There will be no separate fees for Chemical and Histological Laboratory work, dissecting and final examinations as heretofore.

FEES FOR THE ANNUAL SPRING AND SUMMER COURSE.

Matriculation Fee, good till the following April, - $5.00
Tickets for the Course, - - - - - 20.00

This amount will be deducted from the fees of the next following winter session.

Instruments and appliances for Clinical Department will cost from $25.00 to $40.00.

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Graduates of the College are requested to notify the Dean of changes in their residences.

A fee of $5.00 must be deposited to cover chemicals and breakage in the Chemical Laboratory.

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The lot on which the building stands has a frontage of eighty-five feet, and a depth of one hundred and twenty feet. It is a five-story and basement structure, the basement and first story being of rock-faced Bedford stone, and the superstructure of pressed brick and terra-cotta, with terra-cotta trimmings.

The building has two entrances, the main one through a large cut-stone doorway surmounted by a stone arch beautifully ornamented with carved work. The interior is finished in hard wood, according to latest ideas of elegance, convenience and comfort.

The entire six floors of the building are divided into lecture rooms, class rooms, clinic rooms, etc., with the exception of the second floor, which is devoted to the Dental Infirmary. The chief lecture room has a seating capacity for four hundred and fifty students. There is also a dissecting room, thoroughly equipped with all the requisites for the study of human anatomy.

There are Histological, Chemical, Bacteriological Laboratories; also, Laboratories for the study of Operative and Prosthetic Technics, and one for the construction of Artificial Dentures.

The building occupied by the Chicago College of Dental Surgery is, in all its appointments, one of the most perfect and complete of its kind.

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